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SOAP and SANITARY CHEMICALS

CONTENTS

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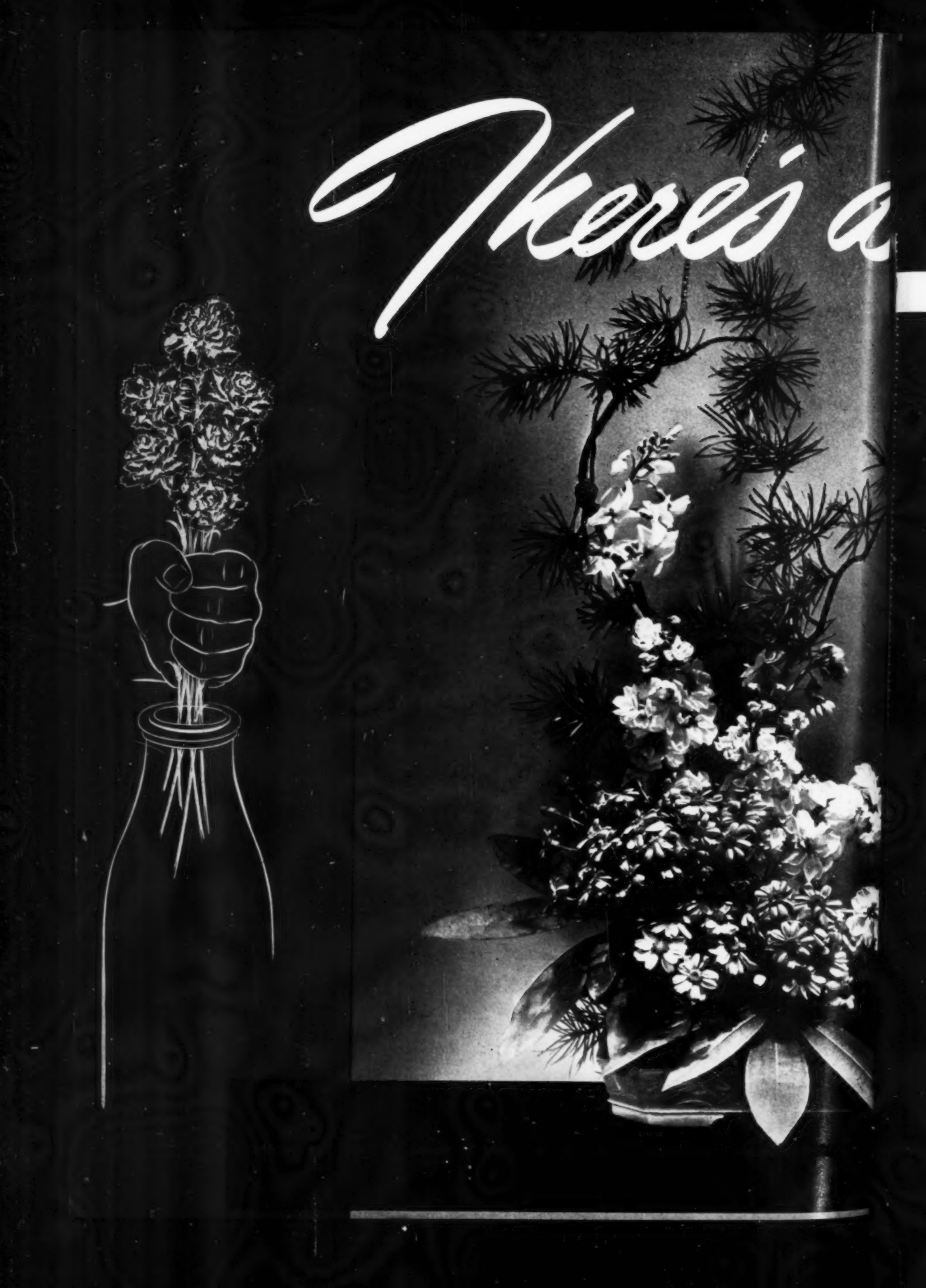
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AS THE EDITOR SEES IT

MOST American soapers do not make public their profit and loss statements for the year. With the exception of a few of the larger firms, which are required to issue statements because of stock listings, soapers keep their fiscal facts to themselves. And as far as 1948 was concerned, maybe it is a good thing. For they would make very depressing reading. As best we can determine, most of the medium soapers really took it on the chin last year. And reports do not indicate that any of the smaller manufacturers came within a mile of profits of previous years. A sharp drop in sales and inventory losses apparently took their toll throughout the entire industry.

On the road back to "normal," 1948 was probably the first full year of operations. Already, much of the water has been squeezed out of the soap market. Demand, prices and competition are closer to the old pre-war basis than they have been in ten years. But, we feel, the industry has readjusted itself over the past year to the new conditions and faces 1949 with a full knowledge of the score. Realizing that the honeymoon is over, and acting accordingly, it should do better this year.

WITH the recent drop in oil, tallow and grease prices, some to new lows for recent years, the decline in demand for soap manufacture and other industrial uses over the past six months is emphasized. Judging from straws in the wind both here and abroad, world oil and fat production appears to have caught up with demand. Or, it might be more apt to say that demand has declined below the level of supply. Production in the United States, but more particularly in Africa and the Mediterranean area, the South Pacific, and Europe, showed a marked increase in 1948. Foreign nations are now filling a larger portion of their own fat needs.

For the first half of 1949, a reduced output of tallow and grease is in prospect for the U. S. Prices may move up from present levels by March or April. At lower prices, the pressure to boost the output of vegetable oils may be reduced and 1949 could see a decline from 1948 figures. Latest increased export allocations may add a firmer note. But until soap demand increases over its pace of the past six months, effects of purchases for the soap kettle are not likely to have much of a bullish effect on the market. Now, about all that is left to get back to "normal" is a removal of government controls.

CONFUSION exists among housewives regarding many soap products and synthetic detergents. Likewise, among retailers who sell the stuff, knowledge of what they are selling is conspicuous by it absence. Neither can tell the sheep from the goats because there is no method within their ken for so doing. Most all soaps, cleansers, and detergents are bought by the housewife and sold by the grocer under brand name. Except where a product is labeled specifically "soap," it can be almost anything in the nature of a cleaning agent. Always, the product is "Buzz," "Rippo," "Fluffy Suds," "Bell," "Cleanso," "Whirl," or some similar coined word which has no meaning to classify or identify it.

That current confusion stems directly from manufacturers' methods of branding and designating their products is quite obvious. The housewife cannot know, except in the case of items labeled "soap," what type or class of material she buys. Possibly this is to the manufacturer's liking. Maybe he prefers that she remain in the dark and discover the merit or shortcomings of cleaning materials by the trial and error method, or that his brand name continue meaningless so as to give wider latitude in formulation and place the product in a class by itself in the consumer mind.

Among industrial and institutional users of soaps and detergents, this confusion does not exist except to a minor degree. More often, the

materials carry descriptive labeling as well as brand name. If they be synthetic detergents, the buyer usually knows this and the purposes for which they should be used. Seldom does he attempt to wash badly soiled cottons with products designed chiefly for dishwashing in hard water, or vice versa.

In their literature on synthetic detergents, booklets, package stuffers, and the like, manufacturers explain just how and why "Blotto" or "Sneeze" work as they do in hard water. But if the grocer does not have them, and the housewife explains that she wants a real synthetic detergent, six-two-and-even she will draw a blank from the grocer. And so if the maker will go to such lengths to explain his product in a booklet, why not some identifying classification on the carton? Fear of sharing the market or advertising with competitors? Possibly. But we feel that the better products can always afford to identify themselves and that consumer confusion invariably works to the advantage of the fly-by-night and the inferior product.

NIGGARDLY is the word used by a leading newspaper to describe the program adopted early last year to install soap and towels in a portion of New York City's schools. The initial plan called for about one pupil in ten to be supplied with these necessities. Now, we have received word which indicates that "niggardly" is a gross understatement. The liquid soap which the largest city will buy for a selected few of its pupils is to be a fifteen per cent anhydrous product. But,—and here is the startling news,—the soap is to be cut two parts of water to one part of soap before use. This means a five per cent liquid soap.

Although low concentrations of liquid soap have been recommended upon rare occasions by manufacturers, an authority on this subject tells us that fifteen per cent for regular dispensers and ten per cent for lather dispensers are the low limits for all-around efficiency and effectiveness in hand washing. Where very low concentrations are used, five per cent for example, the waste is greater. The user merely pumps the dispenser proportionately a greater number of times,—and any excess of this dilute soap runs off the hands into the basin. This means that dispensers, subject at best in schools to rough treatment, really will take a beating with five per cent soap. Do we hear cheers from the dispenser manufacturers?

At five per cent, the soap will not do a good job. There will be kicks,—and the manufacturers will be blamed for supplying poor soap. The dispensers will be beaten to death by the kids and the manufacturers thereof will also be damned. Nice mess of porridge. Ah, economy what sins are committed in thy name!

THE more the FTC cement case pricing decision of the Supreme Court is batted around and discussed by various trade and industry groups, the more complicated and confusing it appears to become. All the thinking to date, and most of the discussions as well, as far as we can see, have been in terms of carload shipments of commodities by manufacturers. Examples have been concerned with quantities of cement,—the product which figured in the court decision,—of steel, of lumber, of chemicals. Little has apparently been thought about the application of this decision to the local wholesale grocer, or to the janitor supply dealer in Pennsylvania who sells and ships across the line into Ohio, or to the mail-order houses, or a hundred other possible applications of this nature.

Inspection of possibilities of the cement decision if applied equally to everybody, both large and small, reveals some situations which could be wholly absurd. But the law in these United States is supposed to apply to *everybody* irrespective of size or condition. And then to add confusion to confusion, out comes Robert Freer, recently retired FTC chairman, with the statement that the Supreme Court decision applies only where ". . . there is organized monopoly and conspiracy to suppress competition,"—adding that the decision does not prevent absorption of freight to meet competition. Then why all the shouting and shooting? And if it's "organized monopoly," where did FTC fit in the picture? Isn't it a matter for the Attorney General and the Sherman Law? If there be a clear answer to all these questions, then it is buried in confusion while the average business firm goes right ahead selling and pricing as it has in the past, maybe breaking the law, maybe not.

LAUNDRY STARCHES

Above: Several of the more widely marketed laundry starch products for use in the home.

and Related Products

By Milton A. Lesser

WHETHER in the home laundry or in the commercial laundry, starching adds that finishing touch which is the mark of good workmanship. When compared to other laundry supplies, the cost of starch or similar products is quite small, but its relationship to quality work is rated very high.

As remarked by one expert (1) on starching, there is nothing more gratifying to the launderer or to his customer than well finished, quality work. It is pleasing to the eye, smooth to the touch and, most important, it gives a new lease on life to the fabric. From the standpoint of quality, says he, too much attention cannot be given to the art of starching. Starching is essential to the "dressing up" of most laundry bundles and it is very closely related to good washing.

There are certain definite advantages accruing from the correct use of starch preparations. Aside from the fact that many fabrics are improved in appearance by the use of small amounts of starch, it is a matter of common observation that starched fabrics are less liable to retain dirt. Consequently, they tend to remain clean for longer periods than untreated materials. (2) As explained by Haynes, (3) this property is dependent upon the fact that the "glazed" fibers of the material take up dirt far less readily than the unprotected fibers. Not only do starched fabrics stay fresh and crisp longer but, because the soil tends to lodge on the starch film rather than in the fiber, the subsequent washings are also made easier. (4)

Starching is necessary, of course, when it is desired to give a more lasting shape to an article—a shirt collar being a familiar example. In addition to producing a finish on the surface of fabrics, starches are also employed to impart body or substance to cotton and linen. (5)

It has been said (6) that the ideal starch penetrates well into the fiber interspaces, imparts a gloss when ironed, and takes up enough moisture to make the fabric soft and pliable. From this it is quite evident that properly prepared and applied starch serves as more than a method for imparting stiffness. In fact, the emphasis upon stiffness in the past often robbed fabrics of their natural look and gave them a "laundered" appearance. Aside from this effect, too much starch makes a garment uncomfortable to wear and, as in the case of delicate skin, may cause irritation. Heavily starched articles also tend to wear out faster, because the fabric is so stiffened that the fibers tend to break rather than flex when creased or subjected to strain. (4)

In general, the stiffening power of a starch preparation is proportional to the amount of starch used per unit of solution. Actually, however, the corresponding loss of fluidity limits the amount of starch that may be employed. Thus, if a solution is too con-

centrated, starch will congeal on the surface instead of penetrating into the fibers of the fabric. This causes sticky and smeary work, known to the professional laundryman as "highlights." (1) A certain amount of gloss is, of course, a desirable objective of starching. This is obtained by ironing and is mainly the result of pressure and friction in flattening the starch film and fabric to produce a smooth surface. (2) Worth noting in this connection is the observation (7, 8) that, in the process of ironing, part of the starch may be changed to a transparent dextrin which adds to the gloss and stiffness.

Starch Cost Small

ALTHOUGH starch is a small item in the total cost of the supplies used in a laundry, it is an important one. The use of a poor quality starch or the improper preparation of the starch may cause considerable trouble. Because of the great variety of materials to be starched, the different methods employed, and the variations in plant conditions, all standard formulas are subject to adjustment to meet specific requirements. As remarked by Haynes, (3) variation of the mixing process produces many different types of starch, each suited to some special type of work. Hence the actual preparation of a starch paste is an individual proposition which is peculiar to each laundry and to each requirment of that laundry.

Starch manufacturers usually provide rather detailed instructions on the best basic methods for using their products. These data sheets, as well as experts (1) in the field, generally stress that starch should be weighed rather than measured in making the laundry preparations. It is noted that the same volume of different starches is not always the same weight. The water should be carefully measured. It, too, may influence the character of the starch preparation; soft water giving a thicker paste than hard water. (6) Prepared starches should be strained to avoid smears or highlights.

Also influencing the starch is the method by which it is to be applied—whether by hand or in the wheel with the washed load. Despite the high degree of mechanization, hand starching is still extensively employed in commercial laundries, especially for shirt work. However, there is a constantly increasing trend toward the mechanical method. Manufacturers recommend wheel starching or sizing of all classes of work wherever possible or practical. Coats, aprons, overalls, and even shirts can be starched and flat work can be sized at the wheel with a great saving of time and labor and with excellent results.

As remarked by one authority, (1) today wheel sizing is generally the rule rather than the exception because there is little work that comes to the modern laundry that will not be improved by a little sizing starch. Sizing, says he, brings out the patterns like new, and the fabric looks, feels and stands up better. Sizing also lays the nap and lint, makes for better ironing and in general provides the various benefits of starch treatment. In the sizing process, the weight of the load, the volume of the water in the wash wheel, the amount of starch used and the period of extraction all contribute directly to the quality of the work. Hence once a balanced sizing procedure is developed for a laundry, it should be maintained.

Although starch production may seem easy, actually in manufacture it requires considerable equipment and "know how." Basically, starch manufacture consists of removing foreign matter and nonstarchy substances without injury to the starch granules. Chemically speaking, various starches have practically the same composition, but they differ greatly with respect to their physical properties. An important factor, for example, is the size and character of the starch granules, which directly affects their ability to penetrate between the fibers of the cloth. (9) This and other characteristics markedly influence the stiffness, pliability and feel produced when the starches are dried or ironed into fabrics.

For example, corn starch yields finishes that are comparatively rigid and brittle, whereas wheat starch gives a tough but pliable film. Corn starch, however, is by far the most important and plentiful starch in this country. To modify its characteristics for best laundry use, it is frequently blended with various porportions of wheat starch. Rice starch, which has very small granules that efficiently penetrate between the fibers, has received much favor for shirt and collar work. (5) However, the corn and wheat varieties remain the most important laundry starches. (10)

Starch may be applied raw or "cooked" or as a cooked and raw mixture. The raw starch process, in which the starch is mixed with cold water, depends upon the penetration of the starch grains into the threads of the fabrics. In the boiled or cooked starch process, the mixture is prepared by boiling the starch in the form of a smooth paste with water. (2) Significant in this connection is the recommendation of some manufacturers that their starch be used cooked because it goes further and gives a better feel and finish.

In line with this recommendation is the fact that starches are usually classed as thick-boiling or thin-boiling. When boiled with water for a sufficient length of time to insure thorough breaking up of the starch granules, the thick-boiling or unmodified starches yield a thick viscous solution, which sets into a stiff gel as the temperature falls. Such starches are used hot.

Thin-Boiling Starch

MORE important and much more used are the thin-boiling starches. These are made from ordinary starches by modifying their properties by chemical means. Once such a starch is boiled, the solution remains fluid or tends to congeal more slowly. Such starches have a great advantage in that they may be used cold. (5) The thin-boiling, more soluble starches do not make the thick pastes typical of common raw starch, hence they have greater penetrating qualities. Thus they are less likely to rub and scale off during ironing and give a less "starchy" appearance to the fabric. However, soluble starches do not provide as great a stiffening effect as the untreated starches. When stiffening power on fabrics is desired, borax,

is often added to the modified starches. (6)

To obtain the desired solubility and thin-boiling characteristics, ordinary thick-boiling starches may be treated with an acid, like sulfuric acid or hydrochloric acid. Alkalies are also employed for making modified starches. The extent to which the solubility and other properties are improved depends largely upon the length of treatment and the quantity of acid or alkali used.

Of course, many variations of the acid or alkali treatments have been described in the patent literature. (11-14) Starch producers have continued their research. One large manufacturer recently announced the development of another type of starch which shows extremely interesting characteristics for laundry use. This is said (15) to be a dry starch, dispersible in cold water, which has sizing characteristics similar to present commercial laundry starches that require cooking. Studies are also being made on new raw materials. "Waxy-maize" is one of the most interesting and promising of such materials. (16-17)

As already indicated, various blends or mixtures of corn and wheat starch are widely used by commercial laundries. Examination of the literature of some manufacturers indicates the advantages claimed for such blends. One producer claims that such a combination provides a smooth, more lasting finish that is resistant to deep soiling and wilting. The lasting body of corn blended scientifically with the penetrating flexibility of wheat is said to restore to fabrics the original finish imparted by the textile manufacturer. In another case, the blend is said to assure a smooth finish and heavy pliable body, one that will iron without sticking or showing on the fabric.

Mixtures of equal parts of corn starch and wheat starch are often employed. One manufacturer also provides a mixture of 40 per cent wheat starch and 60 per cent corn starch. Another producer makes available a blend containing one-third wheat starch. The wide acceptance of corn and wheat starch blends is clearly indicated in the Federal Specification (JJJ-S-701) for laundry starch. This sets up standards for four types of laundry starch as follows: Type I. A thin boiling blended starch consisting of equal parts of wheat starch and corn starch; Type II. A semi-thick boiling blended starch consisting of one part of wheat starch and two parts of corn starch, for sizing purposes; Type III. A modified thin boiling corn starch; and, Type IV. A modified thin boiling wheat starch. Each type has two subclasses consisting of fine and lump products.

For home use, many of the starches sold in packages under various trade names consist of cornstarch that has been treated to improve its solubility and thin-boiling properties. These preparations generally also contain one or more of the substances that are intended to add to the gloss, pliability, softness, or whiteness of the starched fabric. (6) Similar materials are also incorporated in commercial laundry starches to improve the finish, feel, and ease of handling.

As explained by Johnson, (5) materials such as glycerine, tallow, soluble oils, and sulfated alcohols are incorporated into starch to increase softness and pliability. To enhance luster, such agents as Japan wax, soap and borax are added. These lustering materials, says this expert, are not so widely used in the United States as compared with British practice.

Jackman, (2) an English authority on the chemistry of laundry materials, denies the common belief that borax is an important factor in the production of gloss or luster. Borax tends to prevent the browning of starch under the iron. Borax also has a marked thickening action on starch pastes. When used in comparatively small proportions, about five to 10 per cent, it causes the formation of a film which is not only much stiffer but remains stiff for longer periods than when starch is used alone.

A number of so-called combination starches, consisting of mixtures of starch with various improving materials, are described in both the technical and patent literature. An interesting example of such a product, a collar glaze for laundries, is as follows: (18)

Stearic acid, double pressed, powdered	75 parts
Borax, powdered	25 "
Wheat starch	100 "
Ultramarine blue	sufficient

Another combination starch, a so-called gloss starch of English origin, (19) consists of a thoroughly blended mixture of the following:

Tragacanth, powdered	2 lb.
Spermaceti, powdered	4½lb.
Borax, powdered	18 lb.
Starch	100 lb.

The patent literature offers a variety of interesting combination starches. Thus a laundry starch patented (20) a few years ago is described as providing superior penetrating properties, to markedly reduce the tendency of the starched fabric to stick during ironing and to produce an improved finish. A novel ingredient is a whitening pigment, such as titanium dioxide, and an electrolytic component (e.g. sodium chloride and borax) which serves to reduce adherence of the starched article to the

Starch is an important material in laundering, whether used in the home or commercial laundry. Most produced in the U.S. is the corn product. Starches differ widely in physical properties.

iron. An illustrative example is as follows:

Starch, thin boiling	83 parts
Titanium dioxide	2 "
Dried corn syrup solids	4 "
Borax	8 "
Sodium chloride	3 "

This preparation is used in a ratio of 0.1 to 10 per cent; depending on the type of garment being treated. Cuffs and collars, for instance, would require the higher proportion.

A foreign patent (21) describes another type of composition for starching fine laundry. In this case, use is made of a mixture of crude starch with borax and soluble starch; the proportion of soluble starch being not more than 20 per cent of the proportion of crude starch. In another foreign patent, (22) the claim is made that the starching effect of natural starch and the superior penetrating action of thin boiling starch is obtained through the use of 20 per cent or more of a salt like sodium chloride, sodium sulfate, alum, or aluminum sulfate. As an example, the following combination is cited:

Starch, dry	60 parts
Sodium sulfate, crystalline	40 "

In another process, (23) about three to five per cent of lecithin, made sufficiently fluid by heating, is incorporated by trituration with a cold-swelling or cold-soluble starch. The lecithin serves to inhibit lumping.

Special adjunct preparations for use with prepared starch pastes or solutions offer interesting sales potentialities. These items are quite varied in nature and include products for increasing starch penetration and dispersion, for facilitating ironing and for improving gloss.

More than a decade ago, Jackman (2) made the interesting observation that the addition of complex "wetting out agents" will assist the penetration of starch into fabric. This is very much in line with the suggestion appearing in the up-to-date technical literature (24) of a synthetic detergent producer. Here it is advised that two ounces of a wetting agent ("Santomerse No. 1" made by Monsanto Chemical Co.) be added to each 10 gallons of starch solution to insure penetration and uniform dispersion. Of related interest is a patented procedure (25) in which a small proportion of a polyphosphate, like sodium hexametaphosphate, is added to the prepared starch solution in order to improve penetration and to yield a more uniform and glossier finish.

Gloss preparations to be used with starch, not only serve to provide a smoother finish, but also act to prevent scorching and sticking of the iron. One of the most frequently cited (18,26,27) of such preparations is as follows:

Acacia	1 oz.
Borax	2 oz.
Glycerine	1 oz.
Water	32 oz.

Soak the acacia in the water for six hours, add the borax, then heat to a boil and add the glycerine, let cool and strain. To use, add two ounces of this gloss preparation to three quarts of the usual starch solution.

As pointed out in a British text, (19) white wax, hard paraffin, stearin and spermaceti are often used for starch glazing; the boiling water serving to emulsify the waxy substances. These materials are also incorporated with other aids, as in the following liquid starch gloss, which is used in the ratio of one ounce to seven ounces of starch, before boiling:

Stearin	2 parts
Borax	2 "
Acacia	2 "
Glycerine	5 "
Water	50 "

If a powdered preparation is desired, the following may be tried:

Stearin	30 parts
Borax	10 "
Sodium chloride	1 part
Acacia	5 parts
Starch	40 "

Soap is also a frequent component of starch glosses, a typical powdered preparation being as follows:

Borax	1 lb.
Talc	12 oz.
Coconut oil soap	4 oz.

Other emulsifying agents may also be employed, as in the following self-emulsifying laundry wax: (22)

Japan wax	80.6 per cent
Paraffin wax	9.0 " "
Fatty alcohol sulfate ("Duponol WA" paste)	4.7 " "
Caustic soda (10% solution)	5.7 " "

Mix the waxes, the sulfate and caustic soda solution together in a steam-jacketed vessel and stir until homogeneous. Cease heating and stir occasionally until almost solid, then pour into suitable molds to harden. A product of this type is useful in commercial or domestic laundry practice. When added to a boiling starch mixture for starching clothes, it greatly facilitates ironing.

In passing, it may be mentioned that sulfated higher fatty alcohol is included in an improved laundry starch. According to the patent (29) these mixtures may be supplied as powders or molded tablets.

A more recent patent (30) describes the manufacture of water-dispersible laundry waxes for use with thin-boiling starches to facilitate ironing operations. An interesting feature of these products is that they contain a lipophylic and a hydrophylic dispersing agent. These are used in conjunction with paraffin wax and hydrogenated fish oil; the finished product being cast in molds.

Liquid Starches

A RECENT trend in the starch industry is the increasing manufacture of prepared liquid starches intended chiefly for the home market. Of course the idea of prepared liquid starches is hardly new. For example, a liquid cold water starch was described in one of the older reference texts (19) as follows:

Sago flour	10 lb.
Salt	4 lb.
White dextrin	2 lb.
Glycerine	2 lb.
Water	13 pints

Mix the solids and add the previously mixed glycerine and water; triturate until smooth. Fill into bottles.

The more modern liquid starches are rather different. Affording a high degree of convenience, these ready-to-use liquids are easily measured liquids that disperse quickly and easily. (31) After a number of false starts and rather costly mistakes, standards for the ideal liquid starch have been suggested. (32) Stability for a long period of time under varying conditions is, of course, one of the

(*Turn to Page 87*)

NON-IONIC SURFACE ACTIVE AGENTS

By Jack Dollinger
Glyco Products Co.

THE history of emulsifying agents and surface active agents goes back to the discovery of soap, probably the first emulsifying agent, which has been covered extensively in the literature. Various natural materials such as the vegetable gums, alginates and gelatin are well known for their dispersing and emulsifying properties. However in the past few decades other classes of surface active agents, although not new chemically, have come into prominence for industrial use in increasingly large commercial volume. They include the anionic, cationic and non-ionic groups.

Of the newer groups the anionic surface active agents represent by far the greatest development for industrial use. Their surface activity is due to the presence of an oil-soluble anion or acid radical. These agents are used primarily for their wetting action and detergency. To this group, belong the alkali soaps, the amine soaps, sulfonated oils, alkali salts of sulfated alcohols, sulfonated amides, alkyl-aryl sulfonates as well as other sulfated and phosphated compounds.

More recently the cationic surface active agents were developed. The surface activity of the cationics is due to the presence of a long-chain oil-soluble cation. Many are particularly effective as germicides as well as having good wetting and penetrating properties. Since their activity is due to the cation they are inactivated or precipitated by anionic agents such as soap. This group is largely characterized by the quaternary ammonium salts which together with the following are the better known among the numerous materials belonging to this group: salts of long-chain aliphatic amines, certain half-amides of diamines, long-chain guanidines and hydroxy-alkylamine esters.

The group to receive most recent and rapidly growing attention is that of the non-ionic surface active agents. Non-ionics, as the name implies, do not ionize in water solution as do the anionics and cationics. They depend on a proper balance in the molecule between their hydrophilic groups (polar) and lypophilic groups (non-polar) for their effectiveness as surface active agents. Generally the hydrophilic portion of the molecule is represented by a grouping consisting of free hydroxyl groups, ether-oxygen linkages or both. The lypophylic property is introduced into the molecule by the aliphatic carbon chain of fatty acids or alcohols. Among the numerous members of this group are the partial or complete esters of polyhydric alcohols or long-chain ethers of polyhydric alcohols with long-chain carboxylic (fatty) acids, the ether condensates of polyhydric alcohols with long-chain fatty alcohols, the esters of long-chain alcohols with polyhydroxy acids and the amides prepared from long-chain amines and polyhydroxy acids.

The glycol and polyglycol fatty acid esters make up a large class of surface active compounds of the non-ionic group. Ethylene glycol is the first member of the glycol series which is followed by diethylene glycol containing one ether-oxygen link. As the molecular weight of the series increases the ethoxy (-o-c-c-o-c-c-o-) linkages increase in number while retaining a hydoxyl (-OH) group at either end of the molecule. The polyethylene glycols, as these higher members are known, are liquids and are available in various molecular weights (200, 400, 600, etc.). The trade name "Carbowax" * is given to the higher molecular weight (1000, 1540, 4000, etc.) members which are solids of wax-like consistency. The fatty acids with which these glycols are most commonly esterified are lauric, oleic, stearic and ricinoleic derived from readily available fats and oils.

Propylene glycol (propanediol 1,2) is similar in many respects to ethylene glycol, forming the base for a similar glycol series. The next member of the series, dipropylene glycol, is followed by polypropylene glycols of increased molecular weight. The fatty acid ester series of propylene glycol is also similar in properties to the ethylene glycol ester series. Propylene glycol and its fatty acid esters are non-toxic and edible, making them suitable for use by the food industry as surface active agents, emulsifiers and defoaminging agents.

By varying the starting materials and their proportions a very wide range of physical properties can be obtained. They range from low

*Registered trade mark of Carbide and Carbon Chemical Co.

The non-ionics are receiving more attention as surface active agents. In this group the glycol and polyglycol esters of fatty acids discussed here make up a very important class.

freezing point liquids, oily in character, to relatively high melting point solids, wax-like in properties. Some members of this ester series are insoluble in water and soluble in oils, others are water soluble or dispersible and oil insoluble and a number are both water dispersible and oil soluble. They are essentially neutral or slightly acidic in water soution.

The stability of these non-ionic surface active agents toward salt solutions and hard water is generally far greater than that of cationic or anionic agents of a similar degree of water solubility. Many are only little affected by limited contact with acids or dilute alkalies. Although essentially neutral they may be adjusted to give an alkaline or acidic reaction without necessarily losing their usefulness. Blends of the glycol esters with soaps are well known as effective emulsifiers. Since they do not react with anionic or cationic agents they may be used in conjunction with them, frequently to give greater effectiveness than either of the ingredients alone. They offer a much wider range of compatibilities with solvents and chemicals and are thus more generally useful than anionics and cationics.

The glycol fatty acid esters may be classified roughly into three groups according to their solubility in water; soluble, dispersible, and insoluble or non-dispersible. However, as previously mentioned, this at best is only a very rough classification since the groups overlap. Additions of solvents, fatty acids, soaps and electrolytes may shift a compound from one to another of the groups.

Since the glycols have two free hydroxyl groups available for esterification, a mono-ester or a di-ester may be prepared depending on whether one or two molecules of a fatty acid are reacted with one molecule of the glycol. The unmodified (without added dispersing agents of the anionic or cationic types) mono-esters tend to be more water soluble than the di-esters derived from the same glycol since they have an additional free hydroxyl group and one less fatty acid group. The lower members of the series such as ethylene glycol mono-laurate and mono-stearate are water insoluble and oil soluble because the bulk of the molecule is derived from the fatty acid (lypophilic group). The water solubility of the ester increases as the molecular weight of the glycol increases in the direction of a maximum with the lauric acid mono-esters of the "Polyethylene Glycols" 400 and 600. As the series increases in molecular weight to the esters of the "Carbowaxes" 4000 and 6000 they become less water soluble.

As indicated previously, the water insoluble esters of lower molecular weight glycols may be made water dispersible by the addition of other surface active agents. For example, ethylene glycol mono-stearate may be made dispersible in water by the addition of an alkali soap or an anionic synthetic agent such as sodium lauryl sulfate to the water. A blend of a water-insoluble ester such as diethylene glycol mono-laurate may be made with a small amount of soap to give a clear liquid which will disperse readily on being mixed with water. Such a blend is a commercially available product which is known as "Diglycol Laurate S." *

The glycol fatty acid esters have found commercial use in widely differing fields throughout industry. The applications of these non-ionics depend almost entirely on their physical properties and solubility characteristics and not on their chemical reactivity. The principal uses to which they are put depend on their surface activity in water or oil according to the specific properties and solubilities of the ester. They are used as emulsifying and dispersing agents for oil-in-water and water-in-oil emulsions. A number are good wetting and penetrating agents and detergents. Some are plasticizers and lubricants for plastics, rubbers, and specific water or oil soluble materials. Their versatile solvent properties permit the solution of essential oils in water without the aid of alcohol.

Because of the large number of diversified uses developed, only a few of the more prominent ones in specific industries will be mentioned. The cosmetic industry was among the first to find the non-ionic glycol esters of commercial importance. In this field they are of interest primarily as emulsifying agents for oils and waxes to give greaseless ointment bases and lotions which are essentially neutral. They are used as stablizers and thickening agents together with other emulsifiers. Certain of the esters are used for their emollient effect.

The textile industry finds wide application for the glycol esters as lubricants and as emulsifying agents for the oils used in textile fiber lubrication. They are used as dispersing agents in delustrant formulas, as penetrating agents and dye assistants and as auxiliary detergents in scouring and washing operations. In a number of processes their stability to electrolytes and hard water, without the formation of lime soaps, and to cationic agents is of particular advantage. The incorporation of non-ionic emulsifiers into dry cleaning soaps gives greater effectiveness in detergency and emulsification of the water than the usual anionic soaps.

Insecticide argricultural oil sprays are readily prepared with the non-ionics to give easily formed emulsions which break rapidly with good spreading. The non-ionic emulsifiers are particularly recommended for the manufacture of DDT and chlordane emulsion concentrates. They are used as dispersing agents for wettable powder insecticides.

Some of the higher molecular weight polyglycol fatty acid esters, in tests on animals, have shown a low order of toxicity and are being used by the food industry as wetting agents, emulsifiers and thickening agents.

Many other industries are using these products in commercial production in applications similar to those outlined. Since there is continous concentrated research into the non-ionic surface active agents, there undoubtedly will be many new uses developed. The accompanying chart listing the physical constants of a representative number of the glycol and polyglycol fatty acid esters will indicate the wide range of compounds possible.

*Glyco Products Co., Brooklyn.

Physical Properties of Glycol Fatty Acid Esters

Product	Form and Color	MP °C. or Solidif. Pt. °C.	pH 5% (at 25° C.) Aqueous Dispersion	Solubility In				
				Water	Ethanol	Naphtha	Mineral Oil	Vegetable Oil
Ethylene Glycol (Mono) Laurate	Semi-solid, cream	25-30	....	ND	S	S	S	SH
Ethylene Glycol (Mono) Stearate	Waxy solid, cream	57-60	....	ND	SH	SH	SH	SH
Diethylene Glycol (Mono) Laurate	Oily liquid, yellow	16-19	....	ND	S	PS	SX	SX
Diglycol Laurate S	Oily liquid, yellow	<12	8.7-9.4	D	S	S	S	SX
Diglycol Oleate S	Oily liquid, amber	<0	7.7-8.2	D	S	S	SX	SX
Diethylene Glycol (Mono) Ricinoleate	Oily liquid, amber	<0	....	ND	S	SX	PS	SX
Diglycol Stearate S	Waxy solid, white	54-59	6.8-7.2 (3%)	D	SH	SH	SH	SH
Polyethylene Glycol 200 (Mono) Oleate	Oily liquid, brown	<-5	3.0-5.0	D	S	PS	S	SH
Polyethylene Glycol 400 (Mono) Laurate	Oily liquid, yellow	4-14	5.5-6.5	S	S	SXC, SH	PSC, SH	S
Polyethylene Glycol 400 (Di) Laurate	Oily liquid, amber	8-14	3.5-4.5	D	S	S	S	S
Polyethylene Glycol 400 (Mono) Ricinoleate	Oily liquid, amber	<-10	3.5-4.5	S	S	I	I	PS
Polyethylene Glycol 400 (Mono) Oleate	Oily liquid, amber	<4	3.3-3.8	S	S	SX	I	I
Polyethylene Glycol 400 (Di, Tri) Ricinoleate	Oily liquid, amber	<-10	3.5-4.5	D	PS	S	S	S
Polyethylene Glycol 400 (Mono) Stearate	Soft solid, cream	24-28	3.5-4.5	DH	S	PSC, SH	PSC, SH	PSC, SH
Polyethylene Glycol 400 (Di) Stearate	Soft solid, yellow	33-37	3.5-4.5	DH	S	S	S	SH
Polyethylene Glycol 600 (Mono) Laurate	Oily liquid, amber	23-25	3.0-5.0	S	S	PSC	PSC	S
Polyethylene Glycol 600 (Di) Stearate	Waxy solid, amber	24-26	3.0-4.0 (3%)	DH	S	SH	SH	S
Carbowax 1000 (Mono) Oleate	Soft solid, brown	35-40	3.5-5.0	SH	S	PSH	PSH	PSH
Carbowax 1000 (Mono) Stearate	Waxy solid, yellow	39-42	3.5-4.5	SH	S	I	I	SH
Carbowax 1500 (Mono) Laurate	Soft solid, yellow	25-35	3.0-5.0	D	SH	IH	IH	PS
Carbowax 1500 (Di) Oleate	Semi-solid, brown	25-35	3.5-5.0	DH	S	SX	PS	S
Carbowax 4000 (Mono) Oleate	Waxy solid, amber	53-57	3.5-4.5	SH	SH	DC	PSH	SH
Carbowax 4000 (Mono) Stearate	Waxy solid, amber	51-55	3.5-4.5	S	S	DC	PSH	SH
Carbowax 6000 (Mono) Oleate	Waxy solid, amber	58-61	3.3-3.9	S	S	I	I	SH
Propylene Glycol (Mono) Laurate	Oily liquid, yellow	<12	9.0-10.0	D	S	S	S	S
Propylene Glycol (Mono) Stearate	Waxy solid, white	43-46	9.2-10.0 (3%)	DH	SH	SH	SH	SH

Solubilities

S = Soluble
SH = Soluble Hot
DH = Dispersible Hot
SX = Clearly miscible in certain proportions
I = Insoluble
PSH = Party Soluble Hot
D = Dispersible
PS = Poorly Soluble
ND = Not or poorly, dispersible

MANAGEMENT

By James G. Pleasants
Procter & Gamble Co.

AT an early stage in my business career, I can remember distinctly being taught that the way to improve the part of my company's operations for which I was responsible was very simple. It consisted of: 1) Recognizing a problem when I had one; 2) deciding what needed to be done to meet it; 3) doing it. My teacher at that time, who was also my boss, further stated that those steps occurred in the order of increasing difficulty; that anyone who was alive and had his eyes open could get through the recognition of a problem, but that something more was required to go on from there.

It seems to me that no conference on management could aim at a bigger, more vital objective than training. Management specializes in training, teaching, imparting knowledge. Of all mankind's activities through the centuries, that has probably been the most honorable and constructive. And the center-target of the efforts of the training within industry group is *management*, which should be the most deserving, responsive, and important target picked. The reasons in support of this perhaps may be separated into two groups, which I will call quantitative and qualitative.

On the quantitative side, the growth of our population, business, and business activity really tells the story. The business world simply needs *more* good men in management. Certainly in the case of my own company, the No. 1 limiting factor on going ahead with growth and technical progress is organization. This has been true for years. Likewise this must be generally true of established businesses similar to ours, and even more true in some of the newer fields.

As to the qualitative reasons, I am thinking of the caliber and ability of management, and its importance in working to raise the standard of our way of life.

Management, in the broad sense, is made up of people who are aggressive enough and have enough sense of responsibility to mind not only their own but also other people's business. They feel strongly enough about the importance of things being done right to assume the direction of them. Because of this feeling they do things that they wouldn't do just for money. They are willing to see action taken on their decisions, and if trouble comes they are willing to take the consequences. To make a comparison with football, they call signals on offense, and hold down the safety job on defense.

It is customary to say that scientific knowledge is international. So are the characteristics of a true member of management. The profession of medicine, and perhaps judicial practice, offer the most striking examples of the way in which our system has granted some individuals power over the welfare of others. But for the long pull there is probably no other group which wields as much influence over the fortunes of all of us as those in the profession of management.

There have been times, perhaps not so long ago, when "management" and "ownership" meant almost the same thing. But today, the profession of management is surely made up chiefly of men whose greatest interest is not that of primary ownership, but in seeing why and how a job should be done: men who are willing—in return for a chance to get ahead and fair remuneration—to step up and take the responsibility for getting it done. The key characteristic of such a man of course is his willingness to be responsible; and I will say that the man who does not feel the binding obligation of his responsibility, and does not attempt to live up to it, is not managing, no matter what the name of his job may be. It seems to me he is only meddling.

The principles of management are bigger than the ebb and flow of social and political fashions, and cannot be thought of as being blocked or superseded by them—for true principles never change. Only the conditions under which management must be exercised change. The technique and ability of management must be adaptable. The responsibility that goes with management is not a conditional thing, to be laid aside with the advent of a labor-management committee or a difficult set of regulations. The responsibility is complete and permanent, and when it is gone, management is gone too.

My point is that management is really the kind of occupation in which excuses and alibis don't go. There is no time out in management, no matter how the rules or conditions may change. Either management is managing, or it isn't. And as soon as a member of management puts into effect a course of action for any reason other than his belief that it best meets the circumstances, and for which he is not willing to take full responsibility, then he has cut loose and has forfeited his right to membership.

* Before Training within Industry Foundation Nov. 4.

DEVELOPMENT

Now management has no way of maintaining such a positive position as I have outlined, except through being capable and being right. Over the long pull, management cannot force or compel. It has to demonstrate, to convince, to persuade; and to do these things, a man in management simply has to be better than the other fellow—to be right more times. Whenever he can't do that, he deserves to be superseded. Management has no inherent rights, other than those it continues to earn for itself year by year, through demonstrating its ability. If the head of a union has better and sounder ideas about work simplification than the management of a business, then he holds higher cards on that particular hand, and should be credited accordingly.

In my company we have an elementary example which is quoted from time to time to show what we mean by the kind of resourcefulness we need in men in management: "If you put three or four fellows on an island in the middle of a river, about four hundred miles up in Canada, without any clothes, with just a knife and a few matches, and if a couple weeks later one of them shows up back at the border, and he hasn't lost any weight, and he's found a way to make himself some clothes, hasn't broken any laws, and has sort of enjoyed the whole thing, then you've got a good manager."

Actually, of course, this rough-sounding example makes the problem seem simpler and easier than is the actual situation which faces members of management today. We in this country in the enjoyment of material things are at the highest pinnacle ever achieved in the history of the world. Our standard of living is world-famous. At the same time, or perhaps because of that, we are in a state of anxiety, apprehension, rush, nerves, and dissatisfaction perhaps never before equalled. Geographical frontiers are gone. People no longer have recourse to the safety valve of picking up and moving west when their dissatisfaction reaches a certain point. Largely they have to stay put and take it—and learn to live with an increasing concentration of people, all jealous of their rights.

We have been passing through a political era which has preached security and freedom from want and hunger as inalienable rights of everyone, to be demanded from the existing system at once, never mind the humdrum means. We have another political movement abroad which teaches that the first step toward getting right is to overthrow the whole present system by force, especially the people who have assumed the responsibility of directing and coordinating the work of others. We have the rather uncertain activities of the government in domestic affairs, not always expressing too well the composite feeling of the people, probably, but rather groping—in many cases, I fear—for those courses of action which will prove to be most popular with the organized groups.

Facing all these changes, management today, by reason of its acknowledged position is the strongest single factor in our accomplishment today. Because it has of necessity taken a well-deserved position, it furnishes a magnificent target for the dissatisfactions which are so abundant. The course has been made more difficult because of added hazards, such as a more skeptical, questioning, and independent worker; more regulations which come from the government; and direct competition and opposition from that other kind of management—union management—which has developed to a high degree its particular business of acting as agent for the workers. These, however, are merely problems to be faced.

Another factor which cannot be overlooked is the increasing technical complexity of industrial operations. Taken by itself this challenge is not so different from those which have been encountered and overcome with each passing generation. Through more specialization and improvement in teaching and training, management has solved these problems of a progressively perplexing nature. But when we superimpose them on the problems with people which I have previously mentioned, the need for finding ways to develop management material sufficiently able both technically and in human relations, is seriously increased.

Management, then, is facing its prime task; it must select, train and develop management material to cope with the political, social and technical changes which face us today. Here, of course, there is no choice—other than that of going ahead or quitting. It is unthinkable to do anything other than go ahead and meet the situation.

THIS brings me to some of the practical operational phases of this problem which seem to me to be worth special attention. Before development must come selection, either from the outside or from men already in the organization. It seems to me that the following qualifications should be looked for—through testing procedures, interviews, examination of past performance records and so on:

1. *Good character.* (This is essential.)
2. *Good mental equipment.* (By this I mean not great amounts of book knowledge, but ability to think and reason easily.)
3. *Initiative and the ability to work well against time.* (The type of person who isn't satisfied unless he

has numerous projects coming along.)

4. *Open-mindedness.* (An attitude which suggests a man's willingness to listen to a contrary viewpoint and to contribute his own view honestly and forthrightly; but, in addition, an ability to understand and support the course of action, once it is decided, even though it doesn't coincide with his original view.)
5. *A liking for and an understanding of people as against things.* (I am not thinking of anything like an understanding of psychology or a special interest in industrial relations—everybody who is in management is in practical industrial relations anyway—but simply a sort of common sense understanding of mankind, that springs from a liking for people and a genuine pleasure in doing things cooperatively with them.)

Once the man is selected, and after a sort of trial period, he seems to be right as a candidate for management, then, it seems to me, the first thing which should get special attention is his basic thinking, along such lines as these:

1. Does he appreciate the fundamental soundness and rightness of operating a business successfully and profitably, so that it provides a livelihood for its employees, a fair return to its stockholders, business for its suppliers, and a needed service to its customers? Does he fully appreciate what a business is meant to do, and that such a business does far more for people than any amount of discussion about changing around our economic system?
2. Does he understand the particular obligations which management assumes, the challenges which it has, and the need for paying attention from the earliest moment to being right and being responsible? Does he understand what it does to his reputation and that of his management to pass along instructions for which he disclaims sympathy or responsibility?
3. Does he understand the strength in decisions being reasoned out on the basis of what is of the greatest good for the greatest number, rather than in paying attention to what is just the popular thing to do? And does he understand the strength and rightness there is in the position that changes should be of mutual benefit, and not one-sided in their effect?
4. Does he understand the pitfalls which exist in basing decisions on expediency, with only today's problems in mind, rather than in looking ahead to the other problems which will surely arise?
5. Does he understand that, for the good of the organization, merit is the only sound guide to progress; and that in the mind of a man who has the real good of the organization at heart, there is no room for favoritism, from the viewpoint of either side?
6. And finally, does he understand that the soundest progress which can come to the individuals in a business, comes as a result of the things they do to help the whole business get ahead, thus taking them with it?

As this young man we are developing for management moves along through his earlier years in the business, I would think it helpful to be sure that his experiences contribute certain things to what I will call his understanding—such as:

1. The fact that his people should do things, not because he says so, but because circumstances say it is right for the business. He is only the skilled interpreter of the circumstances. If he develops the facts properly before his people, they can tell him what should be done.
2. The fact that a large percentage of the false starts and mistakes in any business come about, even with the best of faith, through simple misunderstandings, and that the simple act of clear communication is worth a great deal of practice and development.
3. The fact that advancing a man beyond his ability is a hardship to him and to the company—not in any sense a step in his favor—and that it is better to face this openly, rather than go ahead and get into trouble.

I do not see how any man can move successfully along the management development road without having available and utilizing the best kind of staff assistance. In our business we take it for granted that no man can carry in his head the latest and best information and procedures on chemistry, metallurgy, power plants, building, processing equipment, industrial engineering, industrial and labor relations, costs, etc. But what we want him to know is where to get the information fast, how to get people to want to give him information, and how to use it when he needs it.

As a promising candidate for upper management moves along, I should think there would be a place for special and pointed attention to any negative trait he seems to have. He undoubtedly attracts attention first through his strong points, which everyone who climbs high must possess. Nevertheless, in the long run, it may be the weak traits which really will limit the distance he can go. Therefore, some time after any negative trait appears, but before the shell has set too hard, it would seem sensible to make a discreet but perfectly frank and energetic attempt at correction.

This caution, it seems to me, ties in perfectly with my next one: that is, the importance of a record of successes along the way to a candidate being developed for management. An accelerated program of development should certainly stop short of pushing a promising man into deep water too fast, even if a training schedule has to be revised. A man who gets into difficulty because a new job is too big and who has to be stepped back only in very unusual cases probably will ever recover from the effect on his own confidence, and the adverse opinions of his fellows. If, on the other hand, he has had back of him a sound management development program, which pushes him as fast as he can move safely into greater re-

(*Turn to Page* 139)

U. S. SOAP EXPORTS

By John R. Skeen
Foster D. Smell, Inc.
Market Research Department

UNTIL recently, exports of soap constituted an almost negligible share of the total domestic output. During the period 1937-39, about one percent was sold abroad, amounting to 31.4 million pounds annually. In the comparable triennium, 1945-47, annual exports averaged 95 million pounds. As this exceeded three percent of domestic sales, a significant market was represented. However, the record for the first six months of this year suggests that the rise was only temporary and that a return to the pre-war level will be accomplished in the near future.

American soaps have been sent to nearly every foreign country and the complete list is formidable. The demand was predominately for laundry and toilet soaps but the distribution over the years has been erratic, even capricious. Except in a general way, no export pattern has been established. In part this may be accounted for by the political and economic disturbances which have existed throughout the world for over 20 years, and by the fact that some kind of usable product can be made nearly everywhere. In no sense is the world dependent upon American soaps except for short periods and under the most unusual circumstances.

The war created a situation which thoroughly disrupted foreign commerce. It is of some interest to examine a few of the changes. The largest and most stable foreign outlets are represented by only four countries, Canada, the Philippines, the Canal Zone and Cuba. These have steadily accounted for about 40% of U. S. soap exports and probably will continue to do so. Although the war caused fluctuations which continued into 1947, the export shares to these destinations are rapidly approaching

(*Turn to Page* 137)

Soap: Exports by Type and Selected Destination [1]
units: percent and 1000 lb.

	Exports: % of Total			Exports: 1000 lb.					
	1937-39	1945-47	1948 1st half	1937	1938	1939	1946	1947	1948 1st half
Distribution by Type[2]	*100.0*	*100.0*	*100.0*	*32,692*	*26,513*	*35,127*	*101,326*	*93,142*	*23,658*
Medicated, Toilet, Fancy	35.9	27.4	31.0	9,845	10,610	13,406	25,370	16,847	7,327
Laundry	39.5	51.3	41.9	15,635	8,895	12,723	57,711	45,882	9,907
Powdered, Flaked	5.6	10.0	11.3	1,342	1,403	2,511	6,557	16,138	2,682
Shaving Creams	1.2	0.8	0.8	424	397	351	1,441	684	184
Shaving Sticks, etc.	0.7	0.4	0.3	240	157	265	440	325	66
Scouring Bricks, etc.	13.9	6.9	11.6	4,399	4,024	4,680	7,462	7,731	2,750
Other (n.e.s.)	3.2	3.2	3.1	807	1,027	1,191	2,345	5,535	742
Distribution by Destination[3]									
Canada (all types)	16	28	16	5,256	4,112	5,371	8,852	18,843	3,728
Philippines (laundry, toilet)	18	5	11.5	7,636	3,876	4,986	4,684	5,990	2,729
Canal Zone (laundry, scouring)	7	3.5	7		1,831	2,610	3,719	4,467	1,686
Cuba (scouring, powdered)	1	3	2.5	459	294	442	1,621	3,877	612
sub-total: "normal"	*42*	*39.5*	*37*						
Italy (laundry)	—	9	—	2	2	1	17,435	5,668	—
Poland (laundry)	0	8	—	—	—	—	6,489	8,131	—
U.S.S.R. (laundry)	0	5.5	—	—	—	—	2,709	10,699	—
Austria (laundry)	0	1.5	—	—	—	—	11	4,004	—
Union S. Africa (all types)	2	1.5	5	973	536	672	1,675	2,409	1,130
Haiti (laundry, toilet)	2.5	2	6	781	635	944	1,019	4,719	1,453
sub-total: war business	*4.5*	*27.5*	*11*						
Netherlands (toilet)	5	1	—	581	1,727	2,091	1	173	4
India (toilet)	3	2	—	860	993	1,197	159	1,224	3
Netherlands Indies (toilet)	3	—	—	669	1,086	861	189	99	20
sub-total: war decreased	*11*	*3*	—						
Domestic Sales, million lb.[4]	3,168	3,068	1,427	2,959	3,164	3,382	2,570	3,102	1,427
Exports, % of domestic sales	0.99	3.12	1.66	1.10	0.84	1.04	3.96	3.00	1.66

1 1937-45: *Foreign Commerce of the U.S.;* 1946-: *Report No. FT* 410, Department of Commerce.

2 Complete as reported.

3 Selected to show major markets and trends, represents all or nearly all exports to cited countries; China, a major market in the past, is not included nor is Curacao because of change in customs district; parentheses indicate major types sent to cited countries.

4 Basic data collected by American Soap and Glycerine Producers, Inc. and represents 90% of total domestic sales; as reported here, the 90% has been "corrected" to 100% and approximates total sales, including most of the exports; 1935-45: also reported by Department of Commerce, Industry Report, *Fats and Oils*, Jan. 1946, p.17: 1946: courtesy Miss Joyce Cotter.

NEW PRODUCTS

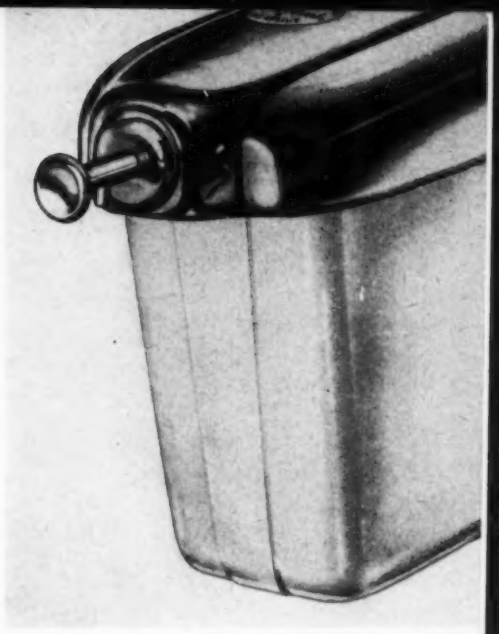
Available again—in a new box—is "Carnation" bath soap made by Shulton, Inc., New York. Each hard milled cake is wrapped in cellophane. Six cakes in utility box retail for around $2.00.

Right: New, low-pressure aerosol type household deodorizers in pine, cologne and meadowsweet fragrances. Center container has protective slip-off type lid removed showing valve which operates under finger-tip pressure. Containers come in lilac, white and blue mother-of-pearl finishes. Rex Research Corp., Toledo, is the producer.

Below: New Tussy of New York "Ginger Spice" line includes three cakes of gingerbread men soap. The line also features "Bubble (bath) Essence" in container shaped like gingerbread man to match soap cakes.

Right: New "Indian Kap" for "Kolynos" tooth paste (made by Whitehall Pharmacal Co., New York). Large advertising campaign is backing new premium, which features brilliantly painted Indian head and headdress in one of six colors.

NEW PACKAGES



Right: New liquid soap dispenser just announced by Bobrick Manufacturing Corp., Los Angeles. Once fastened to wall, dispenser need never be removed. Soap container is made of "Lustrex."

Left: New, pressurized fire extinguisher developed recently by Bostwick Laboratories, Inc., Bridgeport, Conn., throws an 18 foot stream. Comes with wall bracket (see inset) or can be carried in car or tool kit. Retails for $1.29. Three are packed in colorful display box.

Below: New display for new economy size tube of "Colgate Dental Cream," made by Colgate-Palmolive-Peet Co., Jersey City, N. J. New five-ounce tube retails for 59 cents.

Below: New bath size cake of "Woodbury Facial Soap" announced recently by Andrew Jergens Co., Cincinnati. New bar is hard milled cake to retail for 15 cents, or two for 29 cents.

TRADE NEWS

C-P-P Names Nykiel

J. M. Nykiel, formerly supervisor, has been named divisional manager of the Chicago industrial division of Colgate-Palmolive-Peet Co., Jersey City, N. J. He succeeds John A. O'Brien, who died in an airplane crash earlier in the fall. Mr. Nykiel joined Colgate as a clerk in the home office industrial department on July 6, 1931. He was appointed an industrial salesman in Chicago on June 1, 1938, advancing to the position of industrial supervisor on Feb. 1, 1941.

J. M. NYKIEL

Craig Heads P & G Video

William F. Craig, formerly of the daytime radio program department for Procter & Gamble Co., Cincinnati, was recently appointed manager of television and motion picture activities. Gilbert A. Ralston, formerly director of television, becomes executive producer on television programs. The changes were made in view of the developing need for additional personnel in Procter & Gamble's television broadcasting activities.

Soapers Deny FTC Charge

The three largest soap companies in the United States, recently denied Federal Trade Commission complaints charging the firms with price discrimination. Participating in the denial were Lever Brothers Co., Cambridge, Mass.; Procter & Gamble Co., Cincinnati and its wholly owned subsidiary, Procter & Gamble Distributing Co.; and Colgate-Palmolive-Peet Co., Jersey City, N. J. The F.T.C. has charged the three firms with granting rebates to certain large customers when the price of soap products declines, while not granting similar rebates to other smaller and competing customers. While denying the charge of discrimination, the three companies stated that they do grant rebates when soap prices change.

Kemp of Watkins Retires

C. R. Kemp for the past twenty years superintendent of soap manufacture for the J. R. Watkins Co., Winona, Minn., at their Newark, N. J. plant, retired January 1. The soap plant had been dismantled some months ago and the equipment sold. Other manufacturing operations continue at the Newark Watkins factory. Mr. Kemp plans to undertake part-time consulting work in soaps and shampoos. Prior to his association with Watkins, he was soapmaker for the old Remmers Soap Co. at Dayton, Ohio, and prior to that with Procter & Gamble in Cincinnati. He is co-author of the book, "Modern Soap Making," with Dr. E. G. Thomssen.

Ad Club Hears Lever Man

Frederic A. Schneller, general merchandising manager of Lever Brothers Co., Cambridge, Mass., was the featured speaker of the weekly luncheon meeting of the Advertising Club of Boston, held at the Hotel Statler, Dec. 7. Mr. Schneller spoke on the subject of "Merchandising, Partner of Selling." The meeting was held in a circus environment. In his talk, Mr. Schneller discussed the recent joint Lever Brothers-Ringling Brothers Barnum & Bailey promotion, which featured a miniature circus premium.

Detergent Firm Expands

Sal-O-Well Co., Buffalo, N. Y., detergent firm, recently acquired the factory building of Herber Paper Specialties Co., 558 Young St., Tonawanda, N. Y.

Smith Retires from Yardley

Cecil Smith recently announced his decision to retire as chairman of the board of Yardley of London, New York, after 39 years with the firm. At the same time, it was announced that the company at a board meeting had elected the following new officers: president, Philip C. Smith; vice-president in charge of sales, John F. Bales and vice-president in charge of production, Stephen R. Davenport. The new president is the son of the retiring chairman.

PHILIP C. SMITH

Cecil Smith joined the company as a salesmen in the north of England. From 1913 to 1921 he represented Yardley in Australia, and in the latter year formed the company's American affiliate, of which he has been head since. An active member of the Toilet Goods Association, Mr. Smith is a past president of T.G.A.

His son joined the parent concern in 1934, serving in England, Australia and the United States. Prior to his election as president, he was vice-president in charge of sales, and previously had held sales, advertising and production positions.

John F. Bales, who joined Yardley on Jan 1 as vice-president in charge of sales, was formerly with Tek Hughes. The other new vice-president is a Yardley director and has been acting as assistant to Cecil Smith.

Edits Lever *Standard*

John K. Barnes, whose appointment to the public relations staff of

JOHN K. BARNES

Lever Brothers Co., Cambridge, Mass., was announced last month, is now the editor of the *Lever Standard*, employee magazine. Previously he was supervising editor of the Ford Motor Company's employee publications chain in Dearborn, Mich. In addition to editing the *Standard* for Lever Brothers, he will work on other employee communication activities. A graduate of Pennsylvania State College, Mr. Barnes was formerly on the *Wall Street Journal* for six years and served for one year on the *New York Times*.

During the recent war he served as a public relations head of the New York-New Jersey office of the Federal War Labor Board. At one time, Mr. Barnes was public relations officer in charge of trans-Atlantic operations of Pan American World Airways.

British Soap Ration Up

An increase in the British soap ration for 1949 was announced recently in London. The 1949 ration will be about one-sixth greater than in 1947. The increase was made possible by improved supplies of inedible oils from West Africa and other sterling areas and increased supplies of by-products from the refineries of edible oil. The increase will affect toilet soaps, the present ration for which is three bars every four weeks. At the present time Britons draw three small packages of soap powder or one and one-half large bars of washing soap as an alternative to the four-week toilet soap ration. The increase means an extra bar of toilet soap every eight weeks, or the equivalent in other types of soap.

New Size Woodbury Soap

"Woodbury Facial Soap" is now being made in a new and larger bath size to be known as "Woodbury Beauty-Bath," it was announced recently by Andrew Jergens Co., Cincinnati. The new size is the same hard-milled cake as its 70 year old facial companion bar and retails at 15 cents.

Shulton Plant in Canada

Shulton (Canada), a subsidiary of Shulton, Inc., Clifton, N. J., recently established its first Canadian manufacturing operations at 354 Victoria St., Toronto.

P & G Shifts Announced

T. J. Wood, vice-president in charge of sales for Procter & Gamble Co., Cincinnati, recently announced the appointment of three new division managers in the company's sales department. At the same time, the formation of two new sales divisions was announced as part of the realigning of sales territories and the addition of executive sales personnel in keeping with the growth and development of the business.

H. W. Purcell, formerly manager of Procter & Gamble's Chicago sales district, has become manager of the western division. A. H. Wood, formerly manager of the South Dallas sales district, is now southwestern division manager and R. R. Gibson, formerly manager of the Los Angeles sales district, has been named manager of the Pacific division.

E. C. Moffatt, C. W. Mussett and J. S. Janney continue as managers of the eastern, central and southeastern divisions, respectively.

Graff SOCMA Secretary

S. Stewart Graff, assistant secretary of the Synthetic Organic Chemical Manufacturers Association, was recently named secretary to succeed Charles A. Mace, who died Jan. 3.

Young is Soaper 60 Years

C. F. Young, chairman of the board of the Davies-Young Soap Co.,

C. F. YOUNG

Dayton, O., completed sixty years in the soap business on Dec. 10 last. He joined the Buckeye Soap Co. of Dayton, predecessor of Davies-Young, in 1888. On August 1, 1914, he bought a controlling interest in the company and the name was changed to the Davies-Young Soap Co. Mr. Young is believed to be the only person still active in the soap industry today who has had sixty years of service with a single company.

History of the Davies-Young firm dates back to 1844 with the founding of the business by Jerry Pierce to manufacture lard oil and tallow oil. J. P. Davies, a nephew, bought out Mr. Pierce, in 1873. In 1887, the company under the name, Buckeye Soap Co., started to make soap. Davies continued as its head and in 1891, the production of chip soap was started, continuing until 1913, by which time the main business had become potash soaps and industrial soap specialties. In 1895, the name had been changed to the J. P. Davies Co. which name continued until 1914 when the Davies interests were bought out. At present, Russell H. Young, Mr. Young's oldest son, is president of the firm. Also associated with the company are two other of Mr. Young's five sons, Howard Young and John Young. Russell Young is a member of the board of the AASGP.

AASGP Meets in New York

CHARLES F. Brannan, Secretary of Agriculture, will be the featured speaker at the two-day annual meeting of the Association of American Soap & Glycerine Producers, being held at the Hotel Commodore, New York, Wednesday and Thursday, Jan. 26 and 27, it was announced early in January by Roy W. Peet, association manager. In addition, General Carlos P. Romulo, Philippine ambassador to the United Nations and Admiral Ross T. McIntire former surgeon general of the United States Navy and president of the Blood Bank of the American Red Cross are scheduled to address the group luncheons. Adm. McIntire will speak at the Wednesday luncheon, while Gen. Romulo will be heard at the luncheon on the following day.

A. D. H. Kaplan, senior consultant for the Brookings Institution, will discuss the general business outlook on Wednesday morning, Jan. 26.

In general, the outlines of the program will closely follow those of last year's meeting. A departure of this year's gathering, of course, is the site of the meeting at the Hotel Commodore. For the past several years the association has met at the Waldorf-Astoria Hotel. Registration from 8:30 to 10 a. m. will precede the official opening of the meeting, which takes place at 10:00 with an address of welcome and a review of the year's activities by George A. Wrisley of Allen B. Wrisley Co., Chicago, president. He will be followed by Roy Peet, who will enumerate and describe in some detail the services performed by the association. The final speaker of the morning prior to the group luncheon will be Mr. Kaplan.

A two-hour session on market research and its application to the problems of the soap industry will be held from 2:30 to 4:30 p. m., after which the election of association directors and a meeting of the directors will follow. The concluding event of the first day is a reception from 6-8 p. m., the host for which is *American Weekly*.

Breakfasts served from 7:30 to 9:00 a. m. through the courtesy of *True Story* magazine open the second day of the meeting. The remainder of the morning will be taken up with group meetings on bulk and potash soaps and glycerine. Panels on fats and oils, highlighted by government speakers, and forum discussion of synthetic detergents will occupy the afternoon session, immediately following the group luncheon addressed by Gen. Romulo.

Social highlight of the meeting will be the banquet that follows the reception from 6:15 to 7:15 p. m. Secretary of Agriculture Brannan will be the guest speaker at the banquet, at which the new officers will be introduced. Entertainment for the affair will be provided by the four major radio networks.

James Reilly of Colgate-Palmolice-Peet Co., Jersey City, N. J., is chairman of the convention committee.

Soap & Detergent Mfgrs. Assn. to Meet

CONSIDERATION of its future course of activities and policies as an organization will be discussed at some length as one phase of the program of the second annual meeting of the Soap & Detergent Manufacturers Association, to be held Tuesday, Jan. 25 at the Hotel New Yorker, New York. The other portion of the program will be given over to a series of talks by representatives of several government agencies on such raw material supplies as fats and oils, the government's attitude on organizations, particularly of smaller companies and the formation of trade practice rules committees.

A review and forecast of the political and economic outlook for business will be presented by Percy C. Magnus, president of Magnus, Mabee & Reynard, Inc., New York. He will be the featured speaker at the group luncheon.

The morning session, which is to get under way about 10:30, will be given over to talks by the various government people. George L. Prichard, director of the Fats and Oils Branch, Production and Marketing Administration of the U. S. Dept. of Agriculture, will discuss the fats and oils outlook. He will be assisted by Edgar L. Burtis, chief economist of the Fats and Oil Branch. Raymond Dickey, chief counsel of the Senate's Small Business Committee, will discuss the work of his committee and its possible effect on small business concerns. The final speaker of the morning session will be a representative of the Federal Trade Commission, who will cover the desirability of the formation of trade practice rules committees within industry.

Herbert Kranich of Kranich Soap Co., Brooklyn, president of the organization, will preside at both morning and afternoon sessions. He will give his report at the afternoon session, at which time the question of the future course of the association will be discussed. The question of establishing a single organization to represent manufacturers of soaps, synthetic detergents and related sanitary chemical specialties will be considered in view of the fact that in many cases these items, being closely allied, are made as part of a line by the same manufacturers.

The meeting is expected to adjourn about 4:00 p. m.

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Lever 25 Yr. Club Meets

At the seventh annual dinner of the Quarter Century Club of Lever Brothers Co., Cambridge, Mass., held at the Hotel Somerset, Boston, Dec. 2, 30 employees from the Boston area were welcomed into the group, which now numbers 164 members still actively working for the company at the Lever House headquarters, Cambridge plant or Boston sales office. Charles Luckman, president of Lever Brothers Co., headed a group of executives who expressed the company's appreciation to the veteran employees. Other speakers included Dr. C. H. Clarke, technical director of Lever Brothers and Unilever, Ltd., a special guest from London; William R. Veale, vice-president and general manager and Thomas A. Gonser, director of personnel and public relations. William E. Malone, assistant general traffic manager, president of the Quarter Century Club, spoke on behalf of the group. M. A. McManus, company treasurer, was toastmaster. Each new member of the club previously had received a U. S. Savings Bond and a Lever service pin. In speaking to the employees, Mr. Luckman recounted some of his experiences on his recent trip to Europe.

Charles Luckman, president of Lever Brothers Co., Cambridge, Mass., congratulating Miss Mary F. Hickey upon her induction as a member of the firm's Quarter Century Club, at the organization's recent seventh annual dinner. Looking on are William E. Malone, left, president of the club and Reginald W. Stevens, extreme right, also a member.

C-P-P Pays Bonuses

Colgate-Palmolive-Peet Co., Jersey City, N. J., recently announced that the company would pay two weeks' salary to all employees not on a regular commission or bonus basis and who worked 12 out of the last 18 months. Two weeks' salary is also being paid to employees who retired this year.

Shulton Ups Advertising

Shulton, Inc., New York, will increase its advertising expenditure for 1949 by 33⅓ percent over last year, according to a recent announcement. Full-color advertising in a number of nationally distributed magazines will be featured as part of the stepped-up campaign on behalf of four of the concern's lines: "Early American Old Spice," "Friendship's Garden," "Desert Flower Toiletries for Women" and "Old Spice for Men." Large scale national newspaper and trade magazine advertising is also planned.

McMillan Discusses Govt.

George S. McMillan, vice-president of Bristol-Myers Co., New York, and chairman of the board of the Advertising Federation of America, recently speaking before the 10th District A.F.A. Convention at the Blackstone Hotel, Fort Worth, Tex., made a plea for closer scrutiny of government operations on the part of the individual citizen. He cited recent legislation and actions of the Federal Trade Commission as examples of the sort of thing the A.F.A. and individual citizens should be on guard against.

New Fritzsche Price List

Fritzsche Brothers, Inc., New York, recently issued a 12-page price list and catalog on their line of essential oils, aromatic chemicals and related products.

Ferguson Chicago Office

The opening of a sales office at 120 S. LaSalle St., Chicago, was announced last month by H. K. Ferguson Co., Cleveland. L. Douglas Lacy, formerly of the company's main office in Cleveland, is in charge.

New duPont Cleaner

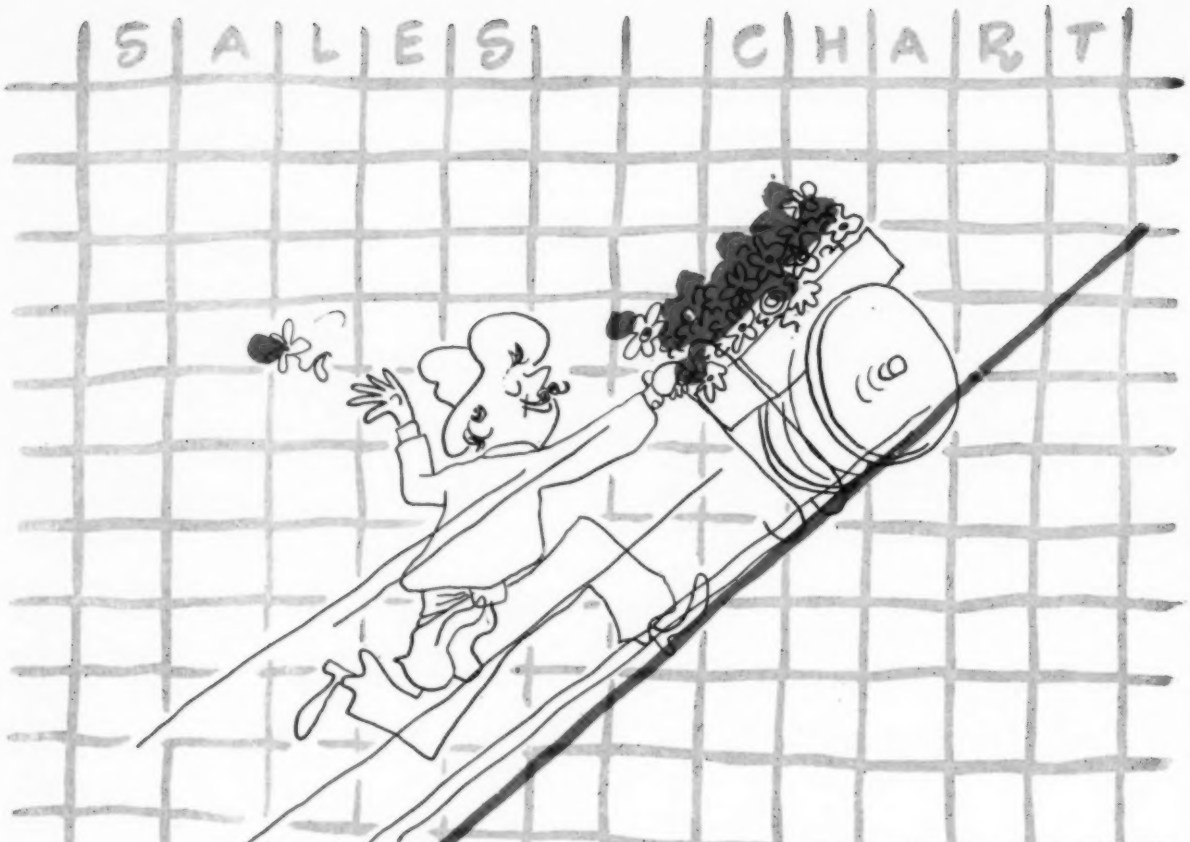
"Ovalclene," a new synthetic dry cleaning detergent compounded for systems using either synthetic or petroleum solvents was announced during December by E. I. duPont de Nemours & Co., Wilmington. The new cleaner causes no foaming in the still, has no after odor, does not corrode filter screens or equipment and is harmless to fabrics and colors, according to the company. "Ovalclene" was developed by the Elecrochemicals Department of duPont.

Warren N. Watson Dies

Warren N. Watson, 59, secretary of the Manufacturing Chemists' Association of the United States since 1930, died Dec. 9, in a Washington Hospital after a long illness. Prior to joining the association, he was chief of the chemicals division of the U. S. Tariff Commission. A native of Auburn, Me., in 1919, he left the Army to join the chemical staff of the United States Tariff Commission, with which he was connected from 1919 until 1930. He was named chief of the chemicals division of the Commission in 1926. Four years later he was appointed secretary of the Manufacturing Chemists' Association in Washington, D. C.

Walmann Joins Huisking

Joseph C. Walmann, formerly of New York Quinine & Chemicals Works, Inc., Brooklyn, recently joined the sales staff of Charles L. Huisking & Co., New York.



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Elder in New Lever Post

Robert F. Elder, vice-president in charge of consumer research, was

ROBERT F. ELDER

recently appointed to the newly created post of vice-president in charge of affiliated companies by Lever Brothers Co., Cambridge, Mass. The creation of the new post is necessary in order to have one top executive devote his entire time and effort to the many new companies and products acquired by Lever Brothers in the past two years, according to Charles Luckman, Lever president, who made the announcement. Mr. Elder is a former professor of marketing at Massachusetts Institute of Technology. He joined Lever Brothers in 1937 as director of market research. He is a graduate of Harvard, where he majored in chemistry. He began his business career as a research chemist for the organization controlling the "Technicolor" process for motion pictures. In 1927, he became market analyst for Brown Co., a New England pulp and paper concern. Following his receipt of the Alvin Simonds Award for the best paper on "Reducing Costs of Distribution," M.I.T. invited Mr. Elder to become professor of marketing, a post he held from 1929 to 1937. During those years he acted as a consultant for many prominent industrial organizations.

H. M. Rosecrans Dies

Hubert M. Rosecrans, 59, assistant director of sales of the Grasselli Chemicals Department of E. I. duPont de Nemours & Co., Wilmington, Del., died recently in the University of Pennsylvania Hospital, Philadelphia. His association with Grasselli dates back to 1916 when he joined Grasselli Chemical Co. as a research chemist. When duPont acquired Grasselli in 1928, Mr. Rosecrans was assistant to the vice-president in charge of sales. In 1930, he was appointed western division sales manager. Six years later, upon the dissolution of Grasselli Chemical Co., he moved to Wilmington, becoming assistant director of sales in 1944.

Succeeding Mr. Rosecrans is Dr. Wallace E. Gordon, sales manager for agricultural chemicals. Richard W. Thatcher, formerly sales manager of the industrial products development and service section has been named to succeed Dr. Gordon.

Soap Odor Injunction

An injunction was granted by Judge William H. Atwell against the Soap Corporation of America, Wichita Falls, Tex., following protests from residents against odors emanating from the company's plant. Attorneys said the injunction placed upon the soap company the responsibility for operating its plant without foul odors to avoid possible charges of contempt.

Eleven persons previously had been awarded $31,916 in damages after suits against the firm.

Cinn. Drug & Chem. Party

The annual Christmas Party of the Cincinnati Drug & Chemical Association was held Dec. 11, at the Sinton Hotel.

Bartold Norda Chicago V.P.

Norda Essential Oil and Chemical Co., New York, recently announced the appointment of Harry C. Bartold as vice-president of its entire Chicago division. He has been with the firm for about 25 years. Mr. Bartold's father was also prominent in the esential oil field.

An announcement concerning new members of the company's sales staffs in Chicago, St. Louis, Kansas City and Dallas will be made shortly, the company stated.

Reed Heads Cos. Chemists

Raymond E. Reed, vice-president in charge of research and develop-

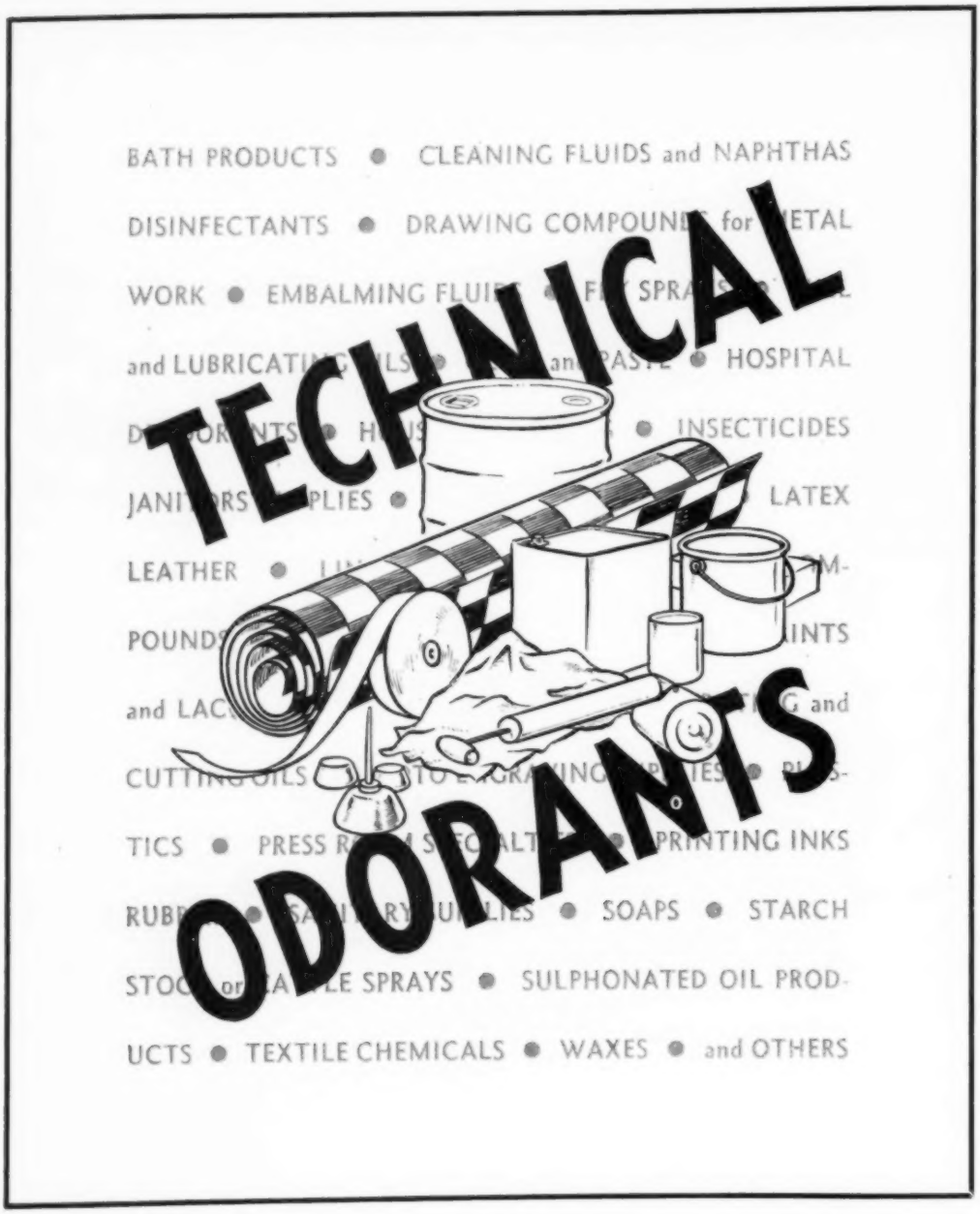
RAYMOND E. REED

ment for Toni Co., Chicago, was elected president of the Society of Cosmetic Chemists at the group's annual meeting at the Hotel Biltmore, New York, Dec. 8. He succeeds Dr. Walter Taylor of Pond's Extract Co., New York. Other officers named included: vice-president Theodore Rider, of Boston; secretary, Ruth R. Bien, New York, and treasurer Emery A. Emerson, Buffalo. Mr. Reed has been with Toni since 1947, having previously been director of research for Warner-Hudnut Cos. From 1941 to 1946 he held a similar position with Raymond Laboratories, Inc., St. Paul. He is one of the original group of 13 chemists who formed the society in 1945 to advance the science of cosmetology.

Papers presented were: "Chemistry of Keratins," by Dr. Milton Harris; "Truth as a Constituent of Advertising," by Howard Henderson; "Cutaneous Reactions to Allergens and Irritants in Cosmetics," by Dr. Joseph L. Morse; "Vascular Reactions of Skin," by Dr. A. Wilbur Duryee; and "Hormones in Cosmetics," by Dr. Joseph Eidelsberg.

Emulsol Rep. in Canada

The appointment of Charles Albert Smith Co., Ltd., Toronto, Canada as its sales representative for Ontario, Quebec and the maritime provinces was announced recently by Emulsol Corp., Chicago.



WHATEVER your product . . . . whatever the odor—be it strong, repellent or offensive—if sales are retarded by its presence, then it's time you consulted us! As pioneers in the field of technical odorants, we have developed effective, low-cost deodorants and neutralizing compounds for scores of individual manufacturers and top-rank industries. Chances are we already have the efficient, time-tested modifier needed to bring immediate solution to your odor problem. Write our Technical Division concerning your needs.

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Soap Fat, Oil Use Down

The decline in reported consumption of primary animal and vegetable oils and fats in soap continued in the third quarter of 1948, according to figures released recently by the Bureau of the Census of the Department of Commerce, Washington, D.C.

Fat and oil consumption for soap in the three months period of July to September totaled 416,663,000 pounds, as against 472,654,000 in the previous quarter, and 509,145,000 pounds in the corresponding quarter of 1947. The third quarter total is the smallest in the past two years.

Inedible tallow consumption, again reported as the largest of any fat or oil, was 214,930,000 pounds during the third 1948 quarter, as against 234,604,000 pounds in the previous quarter and 267,926,000 pounds in the third quarter of 1947.

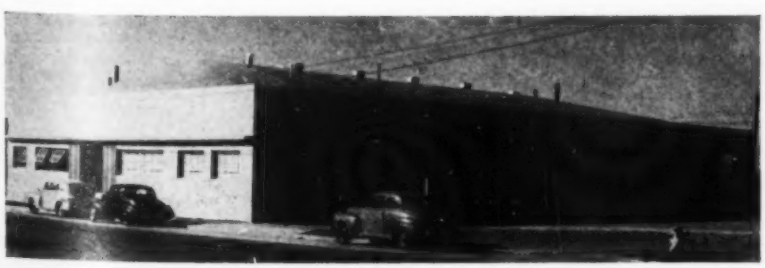
Grease use in soap was reported to have fallen from 121,776,000 pounds in the second quarter to 99,479,000 pounds in the third quarter, 1948. A year earlier, in the comparable period, grease use was set at 96,870,000 pounds.

Coconut oil, the other major soap fat, was used at the rate of 82,182,000 pounds of the crude and refined during the quarter, as against 95,358,000 pounds in the preceding quarter and 124,775,000 pounds in the 1947 third quarter.

Albek Moves Plant

Albert Albek, Inc., manufacturers of perfumes, oils, and bases recently moved their Los Angeles factory to 3573 Hayden St., Culver City, Calif. Production of current lines will be increased and new products will be developed for both domestic and foreign markets, at the new site, according to an announcement. The new plant contains over 10,000 square feet of floor space and is located beside a Southern Pacific spur track.

The New Albek Plant



J. C. Leppart, (third from left) Mathieson Chemical Corp., New York, recently receiving title to the Lake Charles ammonia plant from Hugh H. Brister, district director of the War Assets Administration, acting for the R.F.C. Looking on are J. F. Newel (left), manager of the company's Lake Charles operation and A. T. Bennet vice-president and general manager of Mathieson.

Essential Oil Assn. Scientific Section Meets

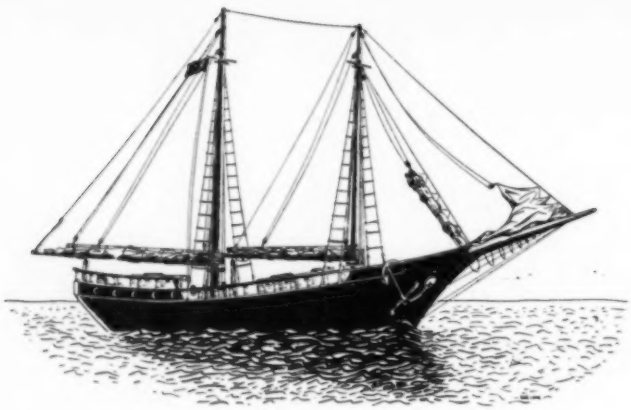
THE Scientific Section of the Essential Oil Association held its annual meeting at the Hotel McAlpin, New York, on December 8th. An attendance of about fifty members, who participated actively in the discussions, contributed to the atmosphere of scientific accomplishment prevailing at the meeting. During the luncheon session, William Schilling Jr., president of the EOA, announced that the annual meeting of the association would be held at the Plaza Hotel on January 7th.

A report of the sub-committee on Specific Gravity Specification by the chairman, Dr. Walter C. Meuly, E. I. du Pont de Nemours & Co., resulted in considerable discussion during the morning session, prior to the adoption of several motions.

The association had followed the policy of reporting specific gravities at 15/15 and specified a factor of .0007 per °C. to correct other values to this temperature. This specification was found to be not entirely satisfactory, particularly to the aromatic chemical manufacturers, since the application of this factor may introduce errors as high as .003 per a 10°C. interval. Furthermore, USP and NF base their specific gravities at 25/25 and specify that determinations be made at this temperature. Advantages of the 15/15 specification include the fact that the Westphal and other chainomatic balances are normally equipped with plummets calibrated for 15/15, however plummets for many other temperatures are available. Secondly, 15/15 is in common usage in the essential oil trades, and in the case of some oils, the specific gravity is part of the specifications.

Following the discussion, the following motions were approved: (1) that the association adopt 25/25 as the official temperature to be used in the monographs and provide suitable correction factors for the oil; (2) that these correction factors be not included in the specifications of the oil, but added as supplementary information for the oil; (3) that the data, to date, regarding specific gravities reported at 15/15, remain as is and be brought up to date at some future meeting.

Specifications for a number of organic compounds were submitted and adopted by the association. These will appear in their entirety in the 1949 *Soap Blue Book*.



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TGA Scientific Section Meets in New York

OVER 375 members and guests attended the semi-annual meeting of the Scientific Section of the Toilet Goods Association held in the Starlight Roof of the Waldorf-Astoria, New York, on December 9th. A program calculated to include both the technical and practical aspects of the industry contributed to the success of the session.

John Williams, Avon Allied Co., New York, as chairman of the nominating committee, reported the nomination of Dr. Albert Pacini, Prince Matchabelli, Inc., New York, for the position of vice-chairman of the scientific section; to which position he was elected.

The opportunities open to the cosmetic scientists in applying their talents to create a strong patent system for their industry were explained by George B. Finnegan of Morgan, Finnegan and Durham, in his paper "What Patents Can Do for the Cosmetic Industry."

The therapeutic claims of some cosmetics automatically place them in the classification of drugs and, therefore, liable to the governmental controls on drugs. The introduction of harmful materials into a finished product without the knowledge of the manufacturer, is entirely possible due to the prevailing policy of specifying only the physical properties of a material. These, and other problems were discussed by George P. Larrick, Associate Commissioner of Food and Drugs, in his paper titled "Some Current Problems in the Regulation of Cosmetics Under the Federal Food, Drug and Cosmetic Act."

Dr. Arthur E. Martell, Clark University and Bersworth Laboratories, presented a paper titled "Amino Acids as Chelating Agents" in which he discussed the development of the acids as chelating agents. Common applications of chelates or sequestering agents include the softening of water, clarification of soaps, and as preservatives of fatty acid derivatives.

Dr. Martell gave detailed information as to the chemical reaction of the chelates, and presented tabular and graphic data on complex formations, which indicated that the strongest complex tendencies occur in the alkaline region, decreasing as the acidity of the solution is increased.

"Some New Methods for the Determination of Consistency of Petrolatum and Waxes" was the paper presented by A. Kinsel, Daugherty Refining, in which some of the deficiencies of the A.S.T.M. method for this determination were indicated and modifications of the procedure offered.

The need for a method to evaluate the stability of mineral oils and petrolatum, which have a tendency to develop peroxides on standing, was emphasized by Milton Golden, McKesson and Robbins, Inc. in presenting the paper on the "Qualitative and Quantitative Determination of Peroxide in Mineral Oil and Petrolatum." The test procedure offers a means of evaluating peroxides in mineral oil and petrolatum and permits a comparison of these oils and petrolatums with respect to stability and quality.

Below: Performers and producers of the recent show given by members of the Salesmen's Association of the American Chemical Industry at the organization's annual business meeting. First row: Gerald McGinty, Millmaster Chemical Co.; Joseph Holzer, McKesson & Robbins; John Henry, Joseph Turner & Co.; second row, Bart Sheehan, Arnold Hoffman Co.; Ralph Ericsson, Sumner Chemical Co.; Herbert Cornell, General Chemical Co., John Butler, Industrial Chemical Sales, W. Va. Pulp & Paper Co.; third row, Walter Farley, Charles L. Huisking & Co.; Leo Kenny, Seydel Chemical Co.; Sidney Craven, Joseph Turner & Co.; Thomas Callahan, Witco Chemical Co. and Frank Fanning.

Begins 74th Year with Firm

A unique event in American industry took place Dec. 15, when Charles Lukes Huston, first vice-president of Lukens Steel Co., Coatesville, Pa., began his 74th year of continuous service with the firm. A grandson of Dr. Charles and Rebecca Lukes, for whom the company is named, Mr. Huston, now in his 93rd year, started with the concern on Dec. 15, 1875, as a clerk and bookkeeper in its offices. He is still active in the business.

New Aromatic Perfume

"Roscent," a new fragrance developed by Aromatic Products, Inc., New York, was announced in and samples were sent out with the latest issue of the company's external house organ, "Lab-Scents." The new perfuming material is recommended for use in liquid and cream shampoos, soap, bubble bath, etc.

BIDS AND AWARDS

Shaving Soap Bids

In a recent opening for miscellaneous supplies by the Bureau of Federal Supplies, U. S. Treasury Department, Washington, D. C., the following bids were received on an unspecified quantity of shaving soap: N. Brittingham & Sons, Philadelphia, 41 cents; J. B. Williams Co., Glastonbury, Conn., 53.9 cents; M. E. Mason, Philadelphia, 46.9 cents; Dixie Janitor Supply Co., Washington D. C., 43 cents; Wm. Messer Corp., New York, 46.75 cents; Unity Sanitary Supply Co., New York, 50 cents.

Treas. Soap Bids

The following bids on item 1, 3,840 pounds of scouring powder; item 2, 600 pounds of laundry soap; item 3, 600 pounds of liquid soap; item 4, 2,400 pounds of soap powder; item 5, 810 pounds of milled soap; item 6, 945 pounds of milled soap; and item 7, 875 pounds of toilet soap, were received in a recent opening for miscellaneous supplies by the Bureau of Federal Supply, Treasury Department, Washington, D. C.: Stahl Soap Co., Glendale, N. Y., item 5, 24 cents; 6, 21 cents and 7, 23 cents; Dickson & Munro Sales Co., San Francisco, item 2, 29.6 cents; 3, 85.5 cents; 4, 16.66 cents and 7, 18.45 cents; Crystal Soap & Chemical Co., Philadelphia, item 3, 70 cents; Harley Soap Co., Philadelphia, item 3, 53 cents; Iowa Soap Co., Burlington, Ia., item 6, 27 cents; Chicago Sanitary Products Co., Chicago, item 3, 85 cents; 4, 12 cents; 5, 25 cents; 6, 24 cents and 7, 30 cents; Colgate-Palmolive-Peet Co., Jersey City, N. J., item 5, 37.632 cents and 6, 19.806 cents; Ches-White Co., Baltimore, item 3, 70 cents; Stevens Soap Co., Brooklyn, item 4, 4.7 cents; Quigley Co., New York, item 4, 4.6 cents; Safford Co., Landrum, N. C., item 1, 10 cents; Midland Laboratories, Dubuque, Ia., item 4, $1.20; Lanair Chemical Corp., Chicago, item 3, 68.8 cents; 5, 23.36 cents and 6, 22.03 cents; Peck's Products Co., St. Louis, item 3, 75 cents; United States Soap Co., Philadelphia, item 1, 17.68 cents; 4, 5.5 cents; 6, 17 cents and 7, 14.62 cents; American Soap & Washoline Co., Cohoes, N. Y., item 1, 9.64 cents and 2, 16.98 cents; E. F. Drew & Co., New York, item 3, 69 cents and 4, 7 cents; James Good Co., Philadelphia, item 3, 84 cents; Maggicora Chemical Co., Los Angeles, item 3, $1.19 and 7, $1.19; Trio Chemical Works, Brooklyn, item 3, 54 cents; Kamen Soap Products Co., New York, item 4, 5.44 cents; Pal Products Manufacturing Co., Brooklyn, item 1, 11 cents; Globe Grocery Co., South Boston, item 1, 29 cents, 2, 49 cents; 3, $2.10; Baums Castorine Co., Rome, N. Y., item 3, 90 cents; California Chemical Co., North Sacramento, item 1, 9.5 cents in one pound cans and 6.5 cents in 40-pound cans; American Products Co., Reidsville, N. C., item 3, 57.3 cents.

Justice Dept. Awards

The following awards were announced in a recent opening for miscellaneous supplies by the Department of Justice, Washington, D. C., for Springfield, Mo.: Kamen Soap Products Co., New York, 4,000 pounds of chip soap at 13.86 cents; Elkay Products Co., New York, 72 dozen deodorant blocks 90 cents; E. F. Drew & Co., New York, one, 230-pound drum of cleaning compound, $37.50.

Sweeping Compound Bids

In a recent opening for miscellaneous supplies by the Federal Bureau of Supplies, U. S. Treasury Department, Washington, D. C., the following bids were received on 20, 000 pounds of sweeping compound: Rightway Mattress Co., Long Beach, N. Y., 10,000 pounds in 100-pound metal containers, $2.50 cwt. and 10, 000 pounds in 100-pound containers, $2.75; Banner Chemical Products Co., Newark, N. J., 2.55 cents a pound; Michigan Sweeping Compound Co., Detroit, 3 cents a pound; John Shea Co., Lawrence, Mass., 2.85 cents a pound; Worth-Spar Co., Middletown, Conn., 2.9 cents a pound in 50-pound burlap bags; Manhattan Lighting Equipment Co., New York, 3.3 cents a pound; Penu Maintenance Co., Richmond, Va., 3.25 cents a pound; Buffalo Sweeping Compound Co., Buffalo, N. Y., $2.30 per cwt; Bonded Paper Products Co., Long Island City, N. Y., $2.60 cwt;, Baer Paper Co., Baltimore, $3.67 cwt; Southeastern Chemical Co., Atlanta, Ga., $3.19 cwt; Formula Floor Products, Newark, N. J., 2.75 cents a pound; Fidelity Cleaning Supply Co., Philadelphia, 3.62 cents a pound; Cotterel Co., Harrisburg, Pa., 28.65 cents, 200 drums of 100 pounds each; Sanitary Soap Co., Paterson, N. J., $2.25 cwt; Puritan Chemical Co., Atlanta, Ga., 3.6 cents a pound.

Treas. Wax Bids

In a recent opening for miscellaneous supplies by the Bureau of Federal Supply, Treasury Department, Washington, D. C., the following bids were received on 380 gallons of floor wax and 12,750 pounds of floor wax: S. C. Johnson & Son, Racine, Wis., item 1, $2.08 and item 2, 35 cents; Bri-Test, Inc., New York, item 1, 90 cents; Trio Chemical Co., Brooklyn, item 1, 56 cents and item 2, 10.5 cents; International Metal Polish Co., Indianapolis, item 1, $1.05 and item 2, 30 cents; Buckingham Wax Co., Long Island City, item 1, 80.9 cents and item 2, 13.4 cents; Fidelity Cleaning Supply Co., Philadelphia, item 1, 76.9 cents and item 2, 15.9 cents; Joseph E. Frankle Co., Philadelphia, item 1, 77 cents and item 2, 17 cents; American Products Co., Reidsville, N. C., item 1, 61.25 cents and item 2, 14.25 cents; Old Dominion Paper Co., Norfolk, Va., item 1, $1.634 and item 2, 27.638 cents; R. M. Hollingshead Corp., Camden N. J., item 1, 69 cents and item 2, 14 cents; Continental Car-Na-Var Corp., Brazil, Ind., item 1, $12.95 less 10% and 10%; Boyle-Midway Co., New York, item 2, 22.9 cents; Dixie Janitor Supply Co., Washington, D. C., item 1, $1.35;

(*Turn to Page* 87)

NEW TRADE MARKS

THE following trade-marks were published in the December issues of the *Official Gazette* of the United States Patent office in compliance with Section 6 of the Act of February 20, 1905, as amended March 2, 1907. Notice of opposition must be filed within thirty days of publication. As provided by Section 14, fee of ten dollars must accompany each notice of opposition.

ZERO-MOTH—This for moth-proofing liquid. Filed June 19, 1947 by Zero-Moth Manufacturing Co., Summit, N. J. Claims use since July 19, 1946.

ACTIV—This for cleaner for copper. Filed Feb. 25, 1947 by Morrisons, Aloha, Oreg. Claims use since Oct. 3, 1946.

DISPELENT—This for insect repellent. Filed July 25, 1948 by United Cigar-Whelan Stores Corp., New York. Claims use since Feb. 1, 1946.

JULIO GONZALEZ CALDERON—This for preparation for treatment of athlete's foot. Filed Apr. 9, 1947 by Julio Gonzalez Calderon, Marysville, Calif. Claims use since Oct. 12, 1946.

LO—This for all-purpose cleaner. Filed May 27, 1946 by Brown Laboratories, Philadelphia. Claims use since January, 1932.

10-9-0 SUDS—This for cleaning powders. Filed Apr. 17, 1947 by Pacific Powder Co., Tenino, Wash. Claims use since Nov. 15, 1946.

FRED—This for cream shampoos. Filed Feb. 24, 1947 by Fred the Hairstylist, Inc., New York. Claims use since Mar. 1, 1933.

The following trade marks are published in compliance with section 13 (a) of the Trade Mark Act of 1946. Notice of opposition must be filed within 30 days of publication and a fee of $25 must accompany each notice of opposition.

BULCO—This for insecticides. Filed July 19, 1947 by W. H. Bull Medicine Co., St. Louis. Claims use since Aug. 31, 1938.

SLUG—This for chemical compound for use as a drain cleaner. Filed Sept. 4, 1947 by Service Industries, Philadelphia. Claims use since July 21, 1947.

SLUG-O—This for preparation for killing slugs, snails and other pests. Filed Oct. 8, 1947 by Andrew Wilson, Inc., Springfield, N. J. Claims use since Dec. 31, 1940.

CHINCH-O—This for insecticides. Filed Oct. 8, 1947 by Andrew Wilson, Inc., Springfield, N. J. Claims use since June, 1933.

BONAT—This for hair shampoos. Filed Oct. 22, 1947 by Samuel Bonat & Bros., Inc., New York. Claims use since 1912.

E—This for insecticides. Filed Feb. 18, 1948 by Penola, Inc., Chicago. Claims use since May 26, 1947.

MAID OF HONOR—This for insecticides. Filed Feb. 18, 1948 by Sears, Roebuck and Co., Chicago. Claims use since Jan. 15, 1946.

GLAMYOL—This for antiseptics containing as an active ingredient a quaternary ammonium compound. Filed Mar. 30, 1948 by Wallace & Tiernan Products, Inc., Belleville, N. J. Claims use since Feb. 27, 1948.

DIVERSEY—This for wood floor seal. Filed Aug. 19, 1947 by Diversey Corp., Chicago. Claims use since July 19, 1944.

GINGHAM GIRL—This for self-polishing floor wax. Filed Oct. 17, 1947 by J. W. Moyer & Sons, Lincoln, Nebr. Claims use since September, 1941.

RUG—This for rug and carpet cleaning compounds. Filed Dec. 24, 1947 by United Vacuum Cleaner Stores, Inc., Cleveland. Claims use since January, 1945.

DIF—This for hand cleaner. Filed July 24, 1947 by Dif Corp., Garwood, N. J. Claims use since February, 1928.

DIVOBRITE—This for chemical preparation in powdered form for bottle washing and food machinery cleaner. Filed Nov. 22, 1947 by Diversey Corp., Chicago. Claims use since Nov. 10, 1947.

HEWITT—This for sudsing cleaner. Filed Dec. 30, 1947 by Hewitt Soap Co., Dayton, O. Claims use since Apr. 24, 1907.

CONTI—This for soap. Filed Oct. 2, 1947 by Conti Products Corp., Brooklyn. Claims use since April, 1937.

EVERGREEN—This for soap. Filed Feb. 16, 1948 by Murphy Laboratories, Inc., Clifton Heights, Pa. Claims use since Apr. 15, 1944.

BOIS DE BOULOGNE—This for toilet soaps. Filed July 8, 1948 by Les Parfums de Dana, Inc., New York. Claims use since May 24, 1948.

PAY-U—This for insecticides. Filed Oct. 7, 1947 by Moorman Manufacturing Co., Quincy, Ill. Claims use since June 11, 1946.

ESTON—This for disinfecting chemicals. Filed July 5, 1947 by Eston Chemicals, Inc., Los Angeles. Claims use since Mar. 1, 1946.

DIVERSEY—This for disinfectant. Filed Aug. 19, 1947 by Diversey Corp., Chicago. Claims use since Jan. 30, 1926.

ANATOLE ROBBINS—This for hair shampoo. Filed Oct. 15, 1947 by Anatole Robbins, Los Angeles. Claims use since October, 1938.

SNO WHITE—This for liquid preparation for treating athlete's foot. Filed Aug. 4, 1947 by Sno White Laboratories, Deemer, Miss. Claims use since Feb. 1, 1932.

LAYMON'S—This for coconut oil hair shampoo. Filed Aug. 25, 1947 by World's Products Co., Spencer, Ind. Claims use since Oct. 1, 1933.

SATTAY—This for shampoo in cream form. Filed Sept. 27, 1947 by Hennafoam Co., New York. Claims use since Sept. 15, 1947.

TAPS—This for insecticides. Filed Nov. 21, 1947 by Pacific Guano Co., Berkeley. Claims use since Jan. 1, 1935.

COMMANDO—This for insecticides. Filed Jan. 23, 1948 by Mayfair Industries, Inc., Chicago. Claims use since June 12, 1947.

HEP—This for insecticides. Filed Feb. 5, 1948 by Bostwick Labatories, Inc., Bridgeport, Conn. Claims use since Jan. 3, 1948.

NORWOOD—This for cream shampoo. Filed Feb. 9, 1948 by Curley Co., Philadelphia. Claims use since June 30, 1888.

DOUBLE Q—This for soap. Filed Aug. 11, 1947 by Great Stuff Products, Inc., Minneapolis. Claims use since 1930.

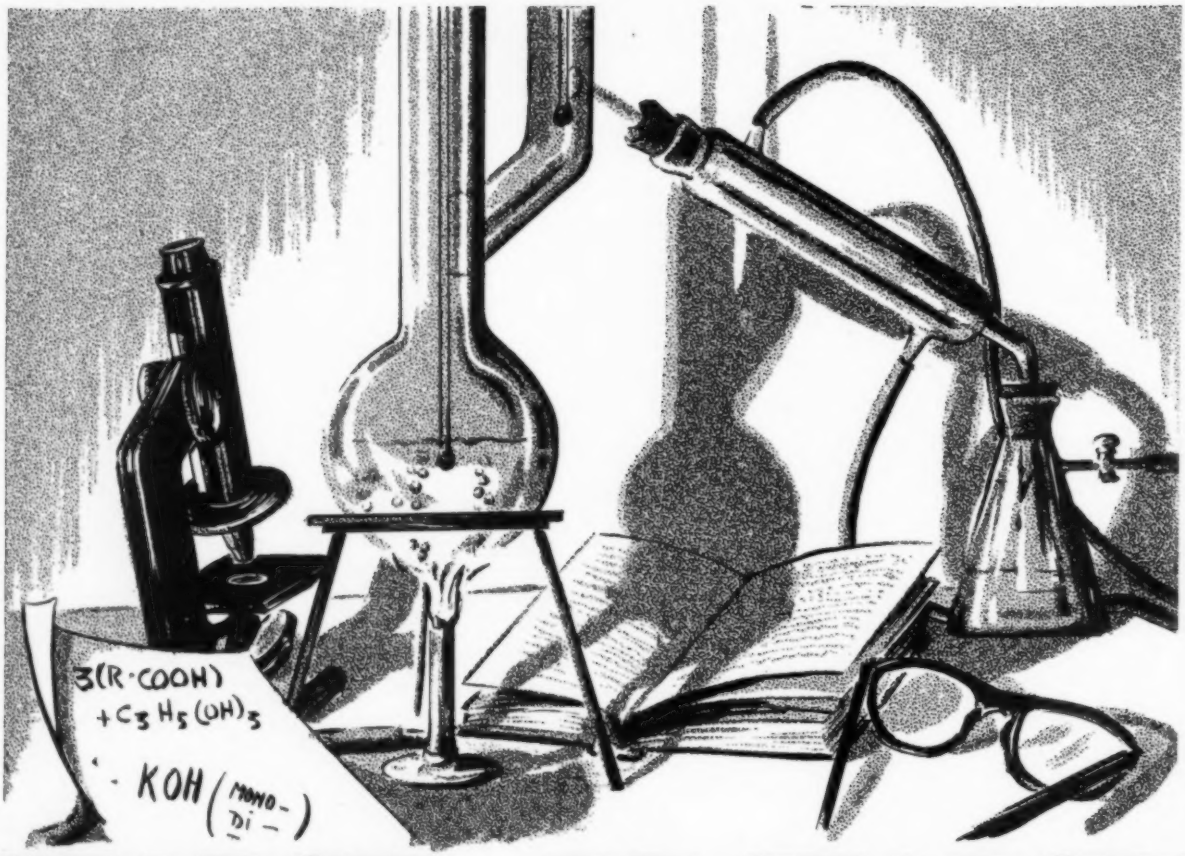
TEMPEST—This for soap. Filed Sept. 27, 1947 by Lucien Lelong, Inc., Chicago. Claims use since Sept. 10, 1947.

CLOVER FARM—This for wall paper cleaner. Filed Apr. 8, 1948 by Clover Farm Stores Corp., Cleveland. Claims use since 1882.

BOMBER—This for inorganic detergent. Filed July 22, 1948 by Diamond Alkali Co., Cleveland. Claims use since Nov. 16, 1942.

DREADNAUGHT—This for inorganic detergent. Filed July 22, 1948 by Diamond Alkali Co., Cleveland. Claims use since Nov. 16, 1942.

SAMSON—This for inorganic



SEARCH and RE-SEARCH

A. GROSS PRODUCTS

- Stearic Acid
- Tallow Fatty Acids
- Red-Oil (Oleic)
- White Oleine
- Coconut Fatty Acids
- Cottonseed Fatty Acids
- Mixed Caprylic & Capric Acids
- Saponification
- Crude Glycerine
- Stearine Pitch
- Cottonseed Pitch

Search and research at A. Gross' laboratories never stops. We can give you many examples of the results. For instance, there's A. Gross' Stearic Acid for monostearate production which is noted for its color stability, mildness of odor and assurance of longer shelf life of end products.

Or there's the Gross series of Coconut Fatty Acids—every one of their merits confirmed by actual plant results. Or the Gross Red Oil with its preferred odor, low titre, comparative purity. We could continue along these lines but why not write for our booklet describing Gross products today? Better still, why not ask for a sample, too?

Manufacturers since 1837

Agents

George Mann & Company, Inc.
Providence 3, R. I.

Baker & Gaffney
Philadelphia 7, Pennsylvania

J. C. Ackerman
Pittsburgh, Pennsylvania

Cadillac Chemical Div.
Nelson Chemicals Corp.
Detroit 27, Mich.

Moreland Chemical Company
Spartanburg, S. C.

Smead & Small, Inc.
Cleveland 15, Ohio

Braun-Knecht-Heimann Company
San Francisco 19, California

Braun Corp.
Los Angeles 21, California

Charles Albert Smith, Ltd.
Toronto 3, Canada

Thompson Hayward Chemical Co.
Kansas City 8, Mo.

A. GROSS & CO.

293 MADISON AVE., NEW YORK 17, N. Y.

FACTORY: NEWARK, N. J.

detergent. Filed July 22, 1948 by Diamond Alkali Co., Cleveland. Claims use since Oct. 1, 1947.

GDC—This for detergents for washing, scouring and cleansing all kinds of textile material. Filed July 14, 1947 by General Dyestuff Corp., New York. Claims use since Nov. 8, 1946.

ATLAS—This for mothproofing materials. Filed Mar. 10, 1948 by Atlas Fumigating and Exterminating Co., Detroit. Claims use since Dec. 13, 1941.

G. D. T.—This for hair shampoos. Filed Feb. 7, 1948 by Raymond Laboratories, Inc., St. Paul. Claims use since June 11, 1946.

GOLDEN KEY—This for tooth powder. Filed Feb. 20, 1948 by Great American Tea Co., New York. Claims use since May 24, 1935.

SHUR—This for cleaning compound for use in washing automotive vehicles. Filed July 12, 1947 by Shur Gloss Manufacturing Co., Chicago. Claims use since Feb. 1, 1939.

K. O. P.—This for soap. Filed July 29, 1947 by Armour and Co., Chicago. Claims use since August, 1927.

DYANSHINE—This for polish for leather goods. Filed Sept. 16, 1947 by Barton Manufacturing Co., St. Louis. Claims use since July 15, 1918.

ALLWHITE—This for preparation in liquid, cream and paste form for cleaning and polishing shoes. Filed Jan. 21, 1948 by Griffin Manufacturing Co., Brooklyn. Claims use since Jan. 10, 1919.

EXAVON—This for detergents. Filed July 12, 1947 by Joseph George Nathanson, Natick, R. I. Claims use since July 2, 1947.

EXAMIDE—This for detergents. Filed July 12, 1947 by Joseph George Nathanson, Natick, R. I. Claims use since July 1, 1945.

SWEET GEORGIA BROWN—This for coconut oil shampoo. Filed Aug. 15, 1947 by Valmor Products Co., Chicago. Claims use since Feb. 1, 1927.

CHANTILLY—This for bath tablets. Filed Sept. 26, 1947 by Houbigant, Inc., New York. Claims use since Feb. 10, 1941.

MONROE—This for chemical antiseptic. Filed Oct. 3, 1947 by Monroe Laboratories, Inc., Chicago. Claims use since Dec. 1, 1920.

M. LOUIS—This for shampoo. Filed Oct. 25, 1947 by M. Louis Products Co., New York. Claims use since June, 1939.

K-T—This for polishing and waxing preparations for floors. Filed Sept. 12, 1947 by A. S. Harrison Co., New York. Claims use since November, 1946.

TEXANA SUDS—This for granulated, liquid, bar and flaked soaps. Filed Apr. 7, 1948 by Texas Soap Manufacturing Corp., Houston. Claims use since June 15, 1934.

EMULPHOGENE — This for detergents for household and industrial purposes. Filed July 10, 1947 by General Dyestuff Corp., New York. Claims use since Aug. 30, 1946.

SANTA MARIA — This for toilet soap. Filed Apr. 12, 1948 by Chicago Sanitary Products Co., Chicago. Claims use since Sept., 1935.

EXCELLO—This for soaps, cleaner, cleanser and detergent. Filed July 5, 1947 by Procter & Gamble Co., Cincinnati. Claims use since Sept. 21, 1932.

KUMAR KLEENAR—This for chemical cleaning compound. Filed Oct. 14, 1947 by Kumar Kompany, Inc., Thomasville, Ga. Claims use since Aug. 17, 1937.

SCAN—This for general household cleaner. Filed Dec. 12, 1947 by Theobald Industries, Kearny, N. J. Claims use since Nov. 26, 1947.

WAX-THETIC—This for combination soap and wax detergent material. Filed Mar. 22, 1948 by Essential Chemicals Co., Milwaukee. Claims use since Mar. 8, 1948.

GLENDALE—This for soap and soap chips. Filed Apr. 8, 1948 by Clover Farm Stores Corp., Cleveland. Claims use since Feb. 1, 1900.

PERFON—This for chemical preparation in powdered form for cleaning and polishing metal. Filed May 1, 1948 by Diversey Corp., Chicago. Claims use since June 3, 1941.

DURA DUST—This for insecticides. Filed Oct. 4, 1947 by Acme White Lead and Color Works, Detroit. Claims use since Sept. 8, 1945.

GY-KILL—This for insecticides. Filed Dec. 10, 1947 by Geigy Co., New York. Claims use since Nov. 19, 1947.

99X—This for deodorant liquid for use in toilet bowls, etc. Filed May 4, 1948 by X Sales & Distributing Co., Seattle, Wash. Claims use since Jan. 2, 1948.

COFFETTE—This for oil shampoo. Filed June 16, 1948 by Coffette Products, Inc., Brooklyn. Claims use since June 1, 1940.

RADIUM—This for hand soap in paste form. Filed Jan. 19, 1948 by Radium Hand Soap Co., Seattle, Wash. Claims use since Nov., 1920.

CUDAHY'S QUICK SUDZ—This for soap in shredded form for use in laundry washing machines. Filed Sept. 15, 1947 by Cudahy Packing Co., Chicago. Claims use since Feb. 22, 1922.

RAMACO—This for cleaning and scouring compounds for all surfaces. Filed Nov. 7, 1947 by R. A. Myers & Co., St. Paul. Claims use since Nov. 7, 1947.

MEM—This for soaps. Filed Dec. 6, 1947 by Mem Co., New York. Claims use since Mar. 29, 1921.

DERBAC—This for tar medicated shampoo soap. Filed Dec. 9, 1947 by Cereal Soaps Co., New York. Claims use since Sept., 1920.

ROYLITE—This for composition for cleaning metals. Filed Jan. 30, 1948 by Hanson-Van Winkle Munning Co., Matawan, N. J. Claims use since Mar. 14, 1921.

DISTINGUISHED SERVICE—This for shave soap. Filed Mar. 10 1948 by Colgate-Palmolive-Peet Co., Jersey City, N. J. Claims use since Jan. 13, 1948.

CUDA-SHEEN—This for concentrated liquid soap for cleaning walls, floors, etc. Filed June 3, 1948 by Cudahy Packing Co., Chicago. Claims use since Apr. 5, 1946.

GLISSENITE—This for combination of alkalis for use in mechanical dishwashing machinery. Filed June 3, 1948 by Cudahy Packing Co., Chicago. Claims use since Mar. 31, 1938.

PANEX—This for cleaner for metal surfaces. Filed June 3, 1948 by Cudahy Packing Co., Chicago. Claims use since Mar. 31, 1936.

G P—This for cleansing and detergent compositions in capsule form for personal, household, commercial and industrial uses. Filed Aug. 7, 1948 by R. P. Scherer Corp., Detroit. Claims use since Oct., 1933.

PINEDLE—This for deodorant and disinfectant. Filed Oct. 17, 1947 by Sunshine Products Co., Seattle, Wash. Claims use since Jan 15, 1937.

ARROW—This for green rouge in stick form for polishing gold, platinum and other precious metals. Filed Sept. 10 1947 by Arrow Supply & Tool Co., New York. Claims use since July 21, 1921.

MENNEN—This for soaps and shaving creams. Filed Dec. 3, 1947 by Mennen Co., Newark, N. J. Claims use since Jan., 1926.

SILVER PUFF—This for silver polish. Filed Dec. 15, 1947 by Hill Manufacturing Co., Atlanta, Ga. Claims use since Feb. 12, 1945.

JAN-O — This for scouring powder. Filed Jan. 26, 1948 by Janitors Supply House, Inc., Baltimore. Claims use since 1923.

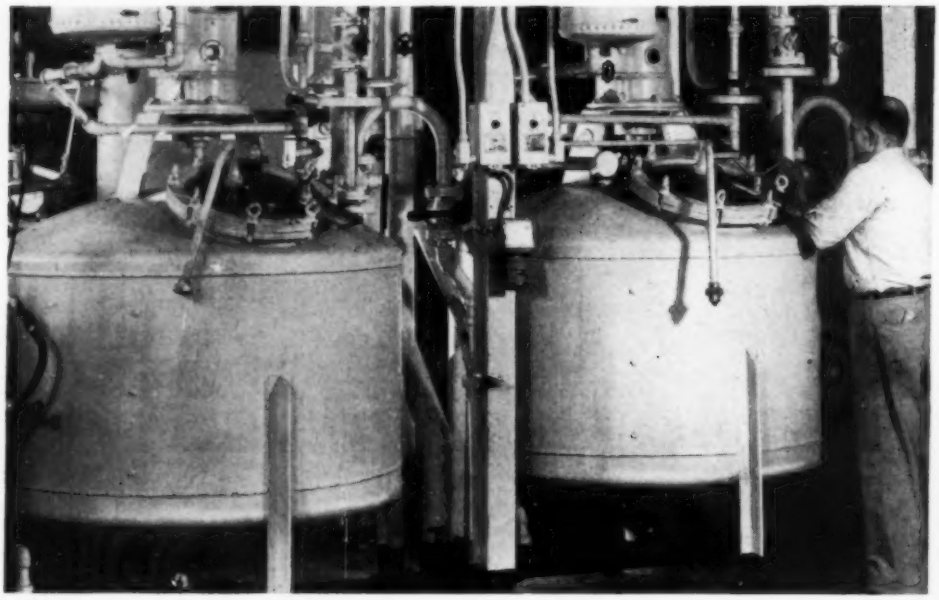
STERNO — This for metal polish. Filed Feb. 20, 1948 by Sterno, Inc., New York. Claims use since Feb. 9, 1948.

DR. GEORGE W. CARVER CURTIS—This for tooth powder. Filed Nov. 14, 1947 by A. W. Curtis Labora-

(*Turn to Page* 90)

For nearly 14 years, the *ingredients* of

. . . have been protected by Nickel-Clad Steel



In operation since 1935, the two bottom tanks of this caustic mixing equipment at Bristol-Myers Company, Hillside, N. J., are Lukens Nickel-Clad Steel; fabricated by Theodore Walter Copper Works of Newark, New Jersey.

There's no metallic contamination of these shaving soap ingredients because they're processed in nickel—no catalytic action to cause off-color by-products. That's why nickel was specified from top to bottom of this mixing equipment. It protects the products and assures long equipment life. After nearly 14 years of use, the tanks are still on the job continually.

Since the bottom tanks work under pressures up to 20 psi, thicker sections were required. By employing Lukens Nickel-Clad Steel, the fabricator obtained adequate thickness—a 20% cladding of nickel permanently bonded to a steel backing plate giving the protection of *solid* nickel at the lower cost of *clad* steel plate.

Do your processes call for nickel, stainless steel, Inconel or Monel? You can get their protection with Lukens Nickel-Clad, Stainless-Clad, Inconel-Clad and Monel-Clad Steels; plates as wide as 178 inches or to over 3 inches thick. Claddings 10% or 20% of total plate thickness suit most needs. The extra-smooth sodium hydride finish makes equipment extra easy to keep clean.

Bulletins 255 and 338 give you additional data. For copies, write Lukens Steel Company, 446 Lukens Building, Coatesville, Pennsylvania.

CLAD METAL STEEL

LUKENS

Nickel-Clad Stainless-Clad
Inconel-Clad Monel-Clad
STEELS

SOLID METAL ADVANTAGES WITH CLAD STEEL ECONOMY

• • SPEED SCRAP TO THE MILLS TO MAKE MORE STEEL • •

is evidence that the soap industry may have passed its sales and production peaks, and that its demands will be less than in the past few years. In addition to intensive promotion efforts attempted during the last twelve months, other indications of lagging sales are figures on soap sales and fat and oil consumption by the soap industry, both of which showed progressive declines during 1948.

On the other hand, if large export commitments are to continue, in the face of low domestic stocks of fats and oils, prices may reverse their present course. The first quarter export allocation of approximately 259,900,000 pounds of fats and oils, including seed in terms of oil, is roughly three times the first quarter 1948 export allocation, and about 100,000,000 pounds greater than the fourth quarter, 1948 allocation. Reduced collections of tallow and grease, plus emergency allocations of these low-grade inedibles, such as the 22 million pounds allocated in the last quarter of 1948 for "contingency" Office of International Trade purposes could bring about an upswing in the fat and oil market. So far they have not, and oil and fat prices have declined since their announcement.

Domestic production of fats and oils during 1949-50, following the near-record 10.3 billion pounds of oils and fats produced from domestic materials during the current crop year, may well fall below last year's output. A contributing, though probably a minor factor, in 1948-49 production of fats and oils is the reduction in refining loss from a nine to 11 percent average to a six to nine percent loss last year.

One big "if" in the whole oils and fats picture is the repeal of the oleomargarine tax. If the tax comes off, the oils and fats market may take a decidedly upward turn.

Some optimism regarding the world fat and oil market may be derived from the fact that within the past 30 days Britain has seen fit to increase its soap ration. The British action tends to confirm the belief that during 1949 the world supply of oils and fats may approach normal.

A free market for Malayan oil and oils seeds was recently announced by the Federation of Malaya and the Colony of Singapore, including North Borneo and Sarawak. Producers are now able to sell palm oil, palm kernels, copra, coconut oil and all other edible oils and oilseeds on a competitive market.

Price reductions on technical DDT were announced recently by two major producers. The new price of 32 cents in carloads represents a decline of four cents from the former price. A price of 33 cents applies on less than carload shipments, while 42 cents is the price in less than standard containers.

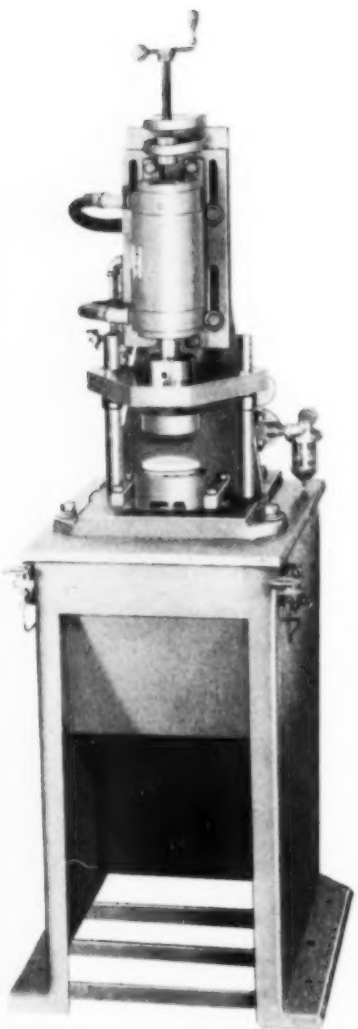
Further reductions in essential oil prices were reported during the month with declines registered on coriander, eucalyptus and cedarwood oils.

THE SAFER, FASTER, SOAP PRESS

for any kind of soap cake

the New "SAFETY AIR PRESS"

Trademark Reg. Pending



Model "A" Safety Air Press*
**Patent Pending*

IT'S SAFER

Air ram cannot move until operator presses down BOTH RIGHT AND LEFT HAND AIR CONTROLS at the same time.

IT'S FASTER

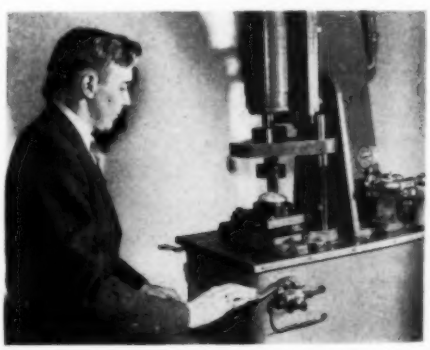
Speed limited only by skill of the operator.

IT'S EASIER TO OPERATE

Operator is comfortably seated in front of the machine, working without the fatigue occasioned by old style foot or hand power.

FEATURES OF THIS NEW MACHINE:

1. Single or multiple power strokes. Any "dwell" desired.
2. Ranges of density attained by simple adjustments.
3. Pressures up to 2500 lbs. available, on "Model A" machine illustrated. Other models for pressures to 10,000 lbs. available.
4. Operator cannot block off one hand control and operate press with other hand. Press cannot function unless both right and left hand air controls are depressed SIMULTANEOUSLY.
5. May be connected to your present compressed air lines, or we can provide a fully automatic electric compressor set.



Note operator has not yet placed left hand on second air control. Therefore air ram is locked. BOTH HANDS must depress BOTH AIR CONTROLS SIMULTANEOUSLY.

This new press will save you money and improve production.

— Licensees and Manufacturers —

HOUCHIN

MACHINERY COMPANY, INC.

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PRODUCTION SECTION

Structure of Soap Solutions

ALTHOUGH much work has been done on detergents, until recently no clear picture has been evolved of the colloidal states occurring in the washing liquid. Part of the difficulty is the complex relation among the various components present, fabric, soil, washing agent, and water.

Soap in Dilute Solution

STUDIES based on diffusion, x ray, and viscosity measurements show that solutions of soap in water vary in nature according to concentration. For example, sodium stearate in very dilute solution gives the monovalent sodium and stearate ions, as would any other 1:1-valent electrolyte. The course of the equivalent conductivity curve confirms this. The critical concentration depends on the length of the carbon chain in the hydrocarbon radical. For a 12-carbon chain, complete dissociation into ions occurs only below 0.003 Normal or 0.1 per cent; for an 18-carbon chain, below 0.0003 Normal or 0.01 per cent. The lowering of the critical concentration with increasing chain length is exponential. In practical washing processes the soap concentration used is 0.3 to five grams per liter or 0.03-0.5 per cent, which exceeds the concentration for complete ionization considerably, since the chain length of most soaps is C_{16}-C_{18}.

Small or Ionic Micelles

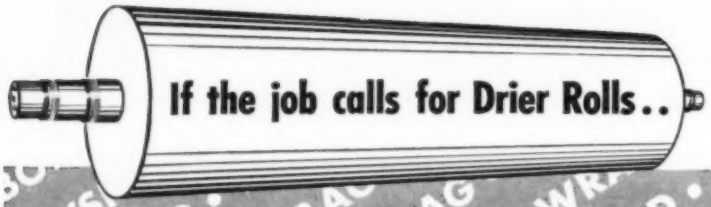
WHEN the concentration of soap solution increases above the critical value, a gradual change ocurs. When completely ionized, the soap solutions are optically clear. With increasing concentrations the solutions show the Tyndall phenonenon exhibited when particles are of colloidal size, that is, 10-1000 Angstrom units.

The forces which cause this aggregation can be explained as follows: The force of cohesion which holds the molecules of a pure paraffin together is greater than the force of adhesion of these molecules toward water so that paraffin will not dissolve in water. When the adhesion of a liquid material exceeds the cohesion of its molecules, then it is soluble. When a hydrophilic end group is introduced into the molecule, adhesion toward water is increased. The hydrophilic end group is attracted toward the water and retained, so that the molecule has become water-soluble. The degree of solubility depends in the first place on the kind of hydrophilic end group, and in the second, on the size of the molecule. Since the hydrophilic end group bears an electric charge because of electrolytic dissociation, and possesses a dipole moment because of its heteropolar structure, a strong hydrate layer is formed around it, since water molecules themselves are permanent dipoles. Since by this hydration process a condensation of water molecules occurs in the region of the hydrophilic end groups, an increase in the mass-adhesive power occurs as compared with the mean value in the solution.

These forces acting on single ions cause them to form aggregates. By a building up of the hydrophilic end groups, the molecule becomes polar only in the region of these groups, while the hydrocarbon residue remains nonpolar and shows no attraction toward water. With increasing concentration this effect increases, so that two or more hydrocarbon ends approach each other and remain together because of their great cohesion. Such aggregates build up to form ionic micelles. The hydrophilic ends are aligned toward the water, the hydrophobic ends toward the inner part of the micelle.

These micelles exhibit the Tyndall effect and show a steep fall in the equivalent-conductivity curve with increasing concentration. In the concentration range at which ionic micelles exist, we have a heterogeneous system; individual fatty-acid ions exist side by side with the micelles. The radius of these micelles has been calculated from diffusion measurements as 24-27 Angstrom units. The diameter corresponds to a length of two 16 carbon-atom chains in a straight line opposite to each other, with a thin hydrate layer separating the ends. A spherical form has been assumed for the micelles. The size of the micelles is independent of concentration and of added electrolytes over a fairly wide concentration range, up until a third state of larger associates appears. The number of fatty-acid radicals in the micelle is characteristic and is dependent on the length of the hydrocarbon chain. The more carbon atoms there are in the chain, the more fatty-acid ions enter into the micelle. It has been calculated that with a chain length of 12 carbon atoms, 39 hydrocarbon radicals enter into the micelle, with 14 carbon atoms, 73, and with 18 carbon atoms in the chain, 93.

The micelle as a whole possesses



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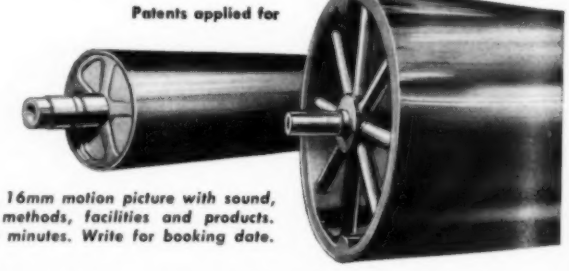

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an electric charge concentrated in the outer surface where the COO_6 groups lie. Around the micelle drifts a cloud of positively charged gegenions of sodium or potassium. The hydrate layer in between hinders an equalization of the charge, although individual particles in the ion cloud approach so closely that they are partially inactivated, which explains the rapid fall in the equivalent conductivity curve above the critical concentration. The attractive forces between individual fatty-acid ions within the micelle are of only a secondary electrostatic nature. The whole is accordingly in a labile state of equilibrium. Through outside influences, for example by impact with fabric or soil particles in the wash liquid, or a decrease of concentration of ions during the washing process, a part of the micelles may decompose so that the thermodynamic equilibrium between ions and associated ions is maintained.

Large Micelles

IF the concentration of soap solution is increased further, the curve for conductivity is lowered, until a second critical concentration is reached. Above this critical concentration the associated particles show a crystalline structure and can be studied by x-ray methods. For sodium oleate this concentration is 18.7 per cent by weight.

At this concentration a lamellar structure appears, with two fatty-acid molecules opposite each other in a straight line 48.5 Angstrom units in length. This is combined with a layer of water molecules so that the thickness of the total unit in a large micelle is 78 Angstrom units for sodium oleate. From this it can be calculated that 19.4 water molecules are bound to the soap molecules in a large micelle of sodium oleate.

This lamellar structure exists for concentrations of about 20-75 per cent. It is not present therefore in concentrations of soap used in the washing process. In solid soap a lamellar structure also exists, but the two fatty-acid radicals, instead of lying in a straight line, are at an angle with each other, so that the thickness of this layer—which of course does not contain bound water—is 44.3 Angstrom units.

Acid Soap

BECAUSE of hydrolysis in soap solutions, aggregates of what might be called acid soap, are formed. In sodium stearate solution, for example, a molecule of stearic acid combines with a molecule of soap to give a new aggregate. This may be a double, a four-fold molecular combination or one even larger. Certain properties of the washing solution such as its protective colloid nature and suspending power for soil, are closely related to this form of aggregate.

It is seen, therefore, that soap exists in various physical forms varying from individual ions in very dilute solution, to large micelles in highly concentrated solutions. Acid soap micelles exist. The "neutral" point of soap lies between pH 10 and 11. Ilse Zeising, *Seifen, Ole, Fette, Wachse 74*, 193-6 (1948).

German Soap Industry

REPORTS continue to be published, based on official post-war investigations of German industry. Technical developments in Germany appeared to be concentrated in efforts to extend soap and soap products by substitution of available synthetics, use of increased amounts of alkalis, and addition of inert fillers such as kaolin, chalk, marble dust, etc. No household laundry soap was produced during the war, general scrubbing and washing operations being carried out by the use of alkalis and washing powders, containing low soap or detergent contents. No special products were developed for use by the German Navy or Army.

Cooling Units

BAR-SOAP cooling units were found in practically all soap plants visited, where floating or hard laundry-type soap was produced. This practice of cooling soap in slab form by means of water-cooled cells arranged in filter-press style is apparently very common and differs from the conventional British and American practice of cooling the soap in frames or boxes, and cutting after cooling.

Advantages claimed for water-cooled units are: (1) Much less floor space required; (2) Less scrap soap produced, 10-15 per cent as against 25-30 per cent by framing method; and (3) Less labor required. Offsetting these advantages are unfavorable factors such as water consumption and slightly duller surface appearance unless cooling procedure is carefully controlled.

Units are constructed with 50-60 soap cells of varying thickness. Face surfaces of water-cooled cells are either nickel plated or of Monel metal. Inside edges of soap cells are of similar metal. Water temperature is 12°C. The time required for the complete chilling process including filling the units and removing the slabs is 60-70 minutes.

Formulas

A FEW typical formulas follow. Household soap, for example, is a cured soap with 63 per cent of fatty acids, made with an average fat charge as follows:

	Per cent
Animal fats	15
Distilled sludge fatty acids	20
Hardened whale oil	10
Coconut or palm kernel faty acids	35
Palm oil	5
Rosin	15

This soap at first was filled to 55 per cent of fatty acids, later lowered to 50 per cent, and in 1939 declined to 45 per cent. As filler a mixture of potash, sodium silicate, and sugar, was used. Addition of sugar was principally to prevent the soap from efflorescing.

A washing powder for heavily soiled clothes such as mechanics' coveralls had the following composition:

	Per cent
Soda ash	45
Sodium metasilicate	20
"Mersol"	3

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Sodium sulfate	15
Moisture	17

"Mersol" is an aliphatic sulfochloride. It has the advantage of being less influenced by water hardness than the fatty acids. For making ordinary washing powder, one to two per cent of "Tylose" was included in the formula. From B.I.O.S. Miscellaneous Report No. 25, *Soap, Perfumery, Cosmetics 21*, 900-903 (1948).

Soap Effect on Skin

Although the new synthetic detergents have excellent cleansing properties, they are not as good as soap for use on the body. Soap not only cleanses, but also lubricates the skin, probably by depositing a unimolecular film of free fatty acid. H. Czetsch - Lindenwald, *Mitt. chem. Forsch. Inst. Ind. osterr. 2*, 3-7 (1948); through *Chem. Abs.*

Cottonseed Oil Color

Both cooking and dehulling of cotton seeds prior to extraction improve the color of the oil extract, regardless of the hydrocarbon solvent employed. Methyl pentanes show a definite superiority as the extraction solvent, when compared with a number of types of paraffines and aromatics as solvents. 3-Methyl pentane was rated the best of the isohexane group. Aromatic hydrocarbons should not be used. A. L. Ayers and J. J. Dooley, *J. Am. Oil Chemists' Soc. 25*, 372-9 (1948).

Measuring Wetting Power

A new method for measuring wetting power is by use of a rectangular foil coated with paraffin. This is plunged vertically into pure water and the vertical force determined with a tensiometer at various depths of penetration into the water of the lower edge of the foil. The adhesion tension for the solid paraffin-pure water system was found to be -27 dynes per centimeter. J. Guastalla and L. Guastalla, Compt. rend *226*, 2054-6 (1948); through *Chem. Abs.*

Use for Resin Soap

In order to prevent slipping of driving belts and similar articles, these are treated with a mixture containing resin soap, a volatile solvent, and a weak alkaline substance. For example, 50 parts by weight of resin are saponified by nine parts of soda ash, diluted to 20 parts with water, and after cooling, by 31 parts of xylene, turpentine, or carbon tetrachloride. C. J. van Dongen, Dutch Patent No. 61,368.

Right: Redesigned "Filt-R-Stil" cartridge demineralizer announced recently by American Cyanamid Co., New York. The device delivers the low cost chemical equivalent of distilled water, without heat and at a maximum rate of 10 gallons per hour. The new wall model is lighter, simpler in design and more compact.

Adulteration of Oils

The aniline point is used to determine adulteration of peanut and coconut oils with mineral oil. It is the temperature of separation into two layers of a mixture of equal parts of sample and of aniline, when gradually cooled from a temperature at which it is homogeneous. The aniline point of coconut oil is 3.2°C., sesame 8.1°, and peanut oil 16.7°. Mineral oils give aniline points varying from 92.5 to 108.8°. J. G. Kane, *Current Sci.* (India) *17*, 150-1 (1948).

Tall Oil Fractionation

Separation of tall oil into its components is obtained by (1) partial esterification with an open-chain alcohol containing one to five carbon atoms in the presence of a catalyst to esterify free fatty acids but not rosin acids; (2) solvent separation by dissolving the major portion of the esters in a nitroalkane containing one to four carbon atoms in the alkane, and the rosin acids in a hydrocarbon solvent such as naphtha. (3) fractional distillation of solvent mixtures; and (4) purification of fractions by distillation. Extraction may be batchwise or countercurrent. L. O. Cummings and H. A. Vogel, to Pittsburgh Plate Glass Co. U. S. Patent No. 2,444,730.

Hypochlorite Bleaching

Overbleaching of cotton fabric by hypochlorite is a serious factor in loss of resistance of the fabric to abrasive wear. During the processing of cotton, loss of tensile strength is not very great while natural coloring matter is being removed, but after that the loss is serious. Bleaching treatment in finishing should be very carefully controlled, and if possible should be omitted from all laundering treatments. H. E. Cowles and J. G. Williams, *J. Textile Inst.* 39, P175-7 (1948).

Whale Oil Composition

The component acids of a specimen of Antarctic whale oil were determined by crystallization from solvents at low temperatures. The results were similar to those obtained by other analytical methods. The oil contained about 16 per cent of disaturated and 2.5 per cent of trisaturated glycerides, about 30 per cent of tri-unsaturated glycerides, and about 50 percent of glycerides containing one saturated acid, one unsaturated C_{18} acid, and one of the other homologous unsaturated acids. About 45 per cent of the oil contained acids of the C_{20} and C_{22} series. Oleic groups were present in over 90 per cent of the oil. T. P. Hilditch and L. Maddison, *J. Soc. Chem. Ind 67*, 253-7 (1948).

PRODUCTION CLINIC

By E. G. THOMSSEN, Ph.D.

THE physical separation of fine, coarse and/or impure particles from a desired granular or powdered end-product is a process widely used in the soap and sanitary chemical industries. The most commonly used methods of separation are by fanning mills, by air separation and by screening or sifting. Less common methods employ magnets if iron is present, and disc separators. Most of this discussion will be devoted to sifting equipment, although brief references to fanning mills, magnetic separators, disc separators and air separation are of interest.

Fanning mills generally are used where the material to be removed consists of light and worthless substances like chaff. For this reason we find this equipment most often where vegetable products like grain, seeds, spices and drugs are handled. These products quite often are non-uniform in size and decidedly heavier than the impurities. By means of conveying them in a thin uniform layer, over which a blast of directed air passes, removes the undesirable substances quite completely. While the products mentioned above are most frequently cleaned by fanning mills, these mills also are applicable for use with other materials.

The use of magnets for separation of iron particles is very simple. One finds magnetic separators used on the feeding end of sifters or mills mainly as a precaution to prevent breakage of the screening cloth or grinding devices, which may be easily damaged by a piece of iron accidentally getting into the powdered substances being handled.

Fanning mills are not satisfactory to remove smaller and/or heavy particles such as broken pieces of grain or foreign seeds like oats or weed seeds in wheat, for example. In such cases disc separators are used. A disc separator consists of a tight compartment or box about five feet long and 18 to 24 inches in width and height. On the front of the separator there is a door set horizontally, the full length, which opens upward. Into the top rear of the box, a chute admits the

DR. THOMSSEN

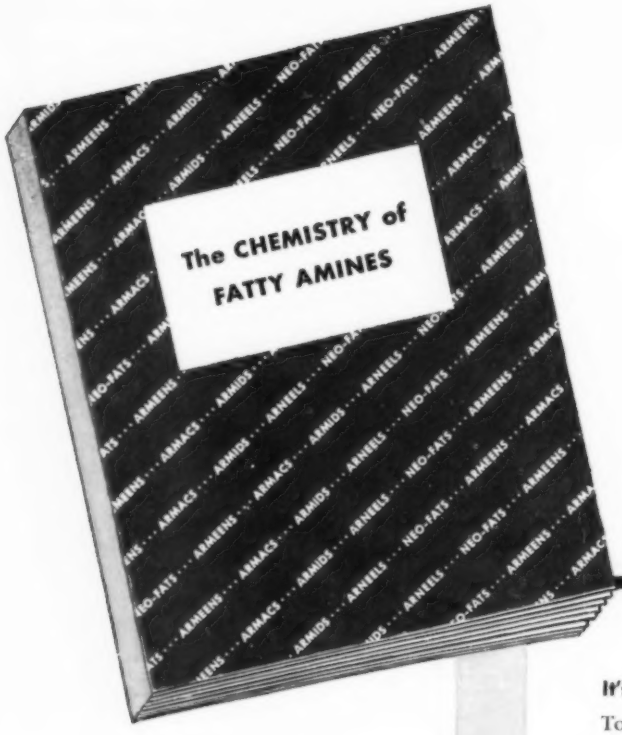
grain and at the bottom, front and rear to one side, there are hoppers which permit the cleaned grain or the smaller rejected pieces to flow to the desired bins. As the uncleaned grain enters the compartment in a thin, constant stream, it is well agitated and thrown against revolving, concentric angular segments or discs about an inch thick and several inches wide. The sides of these discs are covered with indentations that permit the admission of particles smaller than wheat granules and any imperfect or broken wheat kernels. These are carried to the front part of the compartment where they fly out of the vents and are discharged into a hopper that carries away the rejects. The cleaned wheat comes out of the hopper to the rear and to one side of compartment and flows into a cleaned grain storage bin. Disc separation gives a very clean result. The method is flexible, as the discs also may be dulled to remove wheat from oats, for example. By employing two or three cleaning discs with various size indentations in combination separators, it is possible to achieve multiple separations. In this way particles of several different desired sizes may be removed in one operation. While the foregoing discussion of disc separation deals with grains, the principles of operation apply to other granular, non-friable materials processed by this method.

Air separation involves considerable mechanical detail to carry it on properly. The simplest arrangement for separation is in conjunction with the grinder. A fan is attached to the rotor where the ground material discharges. This conveys the powder to a cyclone to slow down the velocity, permitting the finer dust to go on to a greater height or distance. A dust arrester is finally used to permit the escape of air. Oversize tailings are returned automatically for regrinding. Efficient mechanical separators classify powders to high uniform fineness.

Centrifiugal separation of fine from coarse particles may be termed a variation of air separation for the sake of simplicity. In centrifugal separation various methods are used. A fluffy end product of very fine mesh is usually desired. The powders to be treated are first reduced to nearly the desired mesh by a suitable grinding process or within the separator itself. They are then admitted to a drum-shaped, circular chamber into which purified cold air is admitted under pressure of about 100 psi. The finer particles are revolved with the coarser ones in this compartment and when fine enough find egress through a central exit. The coarser, heavier particles are thrown toward the outer circumference and reduced in size by attrition or drop out of the cylinder. They cannot escape until they are ground to sufficiently fine mesh. By proper control of the air stream and other accessories, particle size is kept uniform.

When separation by air is resorted to, it is customary, in many cases, as a safety measure, to sift the end product. Very often coarse materials may accidentally enter the fine mesh powder and screens are the safest means of assuring a satisfactory product even though in such cases screens coarser than the mesh of the powders are used to separate coarse particles.

Screening is the simplest and most common method of separating



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coarse from finely powdered materials. The end product desired may be either the smaller or larger particles. While sifting appears to be a simple process, it involves many different kinds and designs of sifters to obtain the desired results rapidly, satisfactorily and economically.

We will consider in detail some of the more typical screening methods used. Hand screens or sieves may be referred to in fixing more firmly in our minds the mechanical types of screens. In using an ordinary hand sieve one may use various motions to cause the powder to go through the wire screen. The simplest movement is a back and forth movement. This can be termed a reciprocal or shaking motion. The next movement is circular or whirling. This is referred to as gyratory motion. The last motion used is a vertical up and down tapping of the screen cloth with sharp, vertical blows. Here a vibratory screen is used. We find these movements of hand sieves applied generally to mechanical screens, with some refinements of course.

Flat reciprocal screens, often called "shakers," are used quite generally. They are frequently operated with an eccentric, a jarring device and an outlet to permit the unscreened material to move to one end, so as to permit greater screen area. The unsifted material is usually fed at the opposite end and the movement of the tailings is devised so as to move them toward this outlet. Usually the screens operate in a closed compartment to hold down the dust, the screened material passing into a storage bin or box under the screen cloth. These screens are easy to make and work very satisfactorily on many substances especially if they don't clog the sifting cloth. One finds many home-made screens of this type in operation. Quite often they consist of multiple screens to grade the sifted material to different meshes. Reciprocal screens are quite noisy and not too efficient for many materials.

Gyratory screens are more satisfactory and less noisy than reciprocal screens. They are designed so that the screening surface is nearly level, the unscreened powders rapidly spreading over the screen surface with a minimum amount of hop or vertical vibration. As a result of this motion the finer particles pass down to the mesh openings of the screen cloth or wire. Rapid separation of the fine from the coarse particles results. If the screen mesh openings tend to clog, rubber balls are frequently placed in pockets directly under the screening material. The bouncing of these balls causes them to strike the underside of the cloth and by direct contact dislodge any particles. Gyratory screens are widely used on a large variety of materials and give accurate and rapid separations of either finely or coarsely ground powders. They are not noisy during operation and remove tailings automatically making the screening operation continous. Multiple sieve surfaces may be used in gyrating screens for single or multiple separations. They operate very simply. Small space and low power are required to operate gyrating sifters. Many makes are on the market.

Vibrating Screens

VIBRATING screens are those in which the screening cloth vibrates rapidly up and down by mechanical or electrical means. Since this makes a humming sound, one of the first producers of these screens has named them "Hummer Screens." The mechanical vibrating screens are more often used for screening coarser materials. The rapid vibration of the cloth keeps the meshes open and free from the blinding caused by materials difficult to sift. Open or enclosed models are available in many different sizes. The screening surface is usually set at an adjustable angle, the unscreened material being fed at the high end and the tailings passing out at the low end. Special devices are used to prevent capillary attraction and the electric vibrators are commonly set at each of the four corners of the screen cloth. Vibrating screens, due to the constant cleaning of the cloth meshes, permit them to size many materials which cannot be sifted by other methods.

There are also turbine sifters. These patented devices handle a wide variety of powders up to 350 mesh in fineness quite rapidly. They require very little space, power or attention. Very close separation of fine from coarse is possible and capacities up to 10,000 lbs. per hour are available. Their operation proceeds with very little noise.

While these, in brief, are some of the more important types of screens, there are other types of screening apparatus. One of the more common is the bolting machine used quite commonly in flour mills. A bolting machine consists of long, hexagonal or octagonal revolving frames to the outside of which bolting cloth is fastened. The sifted material passes outward and the coarse material is returned for further milling. The product obtained from these is soft and fluffy. For this reason, some manufacturers prefer them to the conventional type of screens described above. Another common sifter is the revolving brush type so often found on dry mixers. These consist of a fixed screen in a semicircular bottomed box or hopper over which revolving short bristled brushes pass. The material is fed into the hopper and is brushed through the wire screen. Such sifters find their greatest application in preventing impurities like nails, pieces of wood or other articles from accidentally finding their way into powders already custom ground for further blending.

In considering screening methods, just a word regarding the screening or sifting medium or material is in order, simple as it may be. In selecting screening cloth, wire or plastic, it is well to make preliminary tests. Not only should the type of material but also the mesh size and shape of the meshes be considered. While bolting cloth is pretty well standardized, this is not the case with wire or plastic cloths. The size of the wire itself, the metal from which it is made and the arrangement of the wire forming the meshes must be taken into consideration. Plastic screen is a more recent innovation and is not yet used to any great extent. The main considerations with plastic screen are economy and corrosion resistance. It is a stronger fiber than silk and has some other advantages.

Screening, then, while it ap-

(*Turn to Page* 89)

SOAP PLANT OBSERVER

By John W. McCutcheon

FOR the manufacture of a good toilet soap, perhaps no factor is more important or more neglected by the small soapmaker than the milling operation itself. Possibly this is because initial sales appeal depends principally on odor, color, form and wrapping. The defects in such a case are obvious. Poor milling, however, shows up only after use. Its appearance is manifest in the rough, sandy or lumpy feel of the washed down surface of the bar as against the smooth silky feel of well milled soap. The test for milling is best carried out by soaking and rubbing down the surface of the test bar with a soft sponge in warm water, until about one third is worn away, or until the die marks are fully obliterated. The soap is then placed in moderately cool water at about 70° F. and rubbed down further with only the hands, noting if any lumps are present or if the bar feels sandy. Lumps are usually the result of poor material handling; sandiness indicates improperly set mills. These points will become clearer if the milling operation is reviewed.

The soap is amalgamated thoroughly for 10 to 20 minutes, depending on the formula, and is then dropped to the mills. Three sets of granite mills of four rolls each, plus a five-roll steel finishing mill, usually do an excellent job if they are properly spaced and faced. The rolls of a mill increase in speed from bottom to top. The soap as it passes from the slower to the faster roll is subject to a rubbing action. At the same time the spacing is decreased from bottom to top in a ratio slightly under that required for maximum production from the top roll. The small bunches of soap micelles are pressed out and smoothed by this process. From the top roll, where the soap is ribboned to give maximum mixing of all parts, it falls to the next set where the rolls are slightly closer together. When mills are operated in tandem, it is the usual practice to run each succeeding

set of rolls slightly faster and with a corresponding decrease in spacing. For example, if the first set had roll speeds from bottom to top of 9, 15, 22 and 35 R.P.M., the second set might be 12, 20, 30 and 47. Flake thickness of the first set might be 0.048″ and off the second set 0.030 etc. Each pass spreads out any hard particles or bunched micelles. After the third pass, a steel mill may be used for finishing purposes because of its higher speed and closer setting.

Off the last roll, the soap is crimped so that the thin sheets are exposed to the air as little as possible. Examination of the sheet coming from the roll should find it somewhat plastic, indicating proper moisture. When held to the light it should show no hard particles or specks of any kind. If the soap does show specks, it may indicate poor setting of the mills, loose bearings, poor temperature control of the steel mill, uneven faces, etc. If the soap is re-passed, it is quite probable that many of the specks will be removed, but additional ones will be added from the dried corners of exposed ribbons and loose dried chips picked up from the rolls. For this reason it is usually unsatisfactory to double or triple mill through the entire set as it seldom gives a satisfactory return for the expense involved.

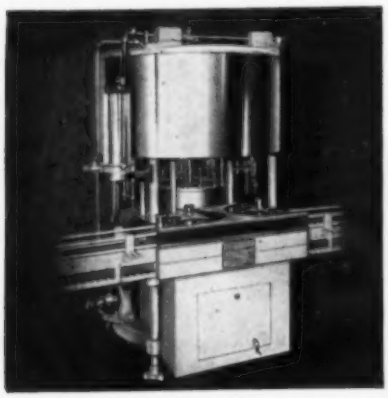
With each pass through the mills; the soap under normal atmospheric conditions usually loses one-half per cent moisture. This is a further argument against repeated passes. Too little water results in a "short" soap which is unfit for plodding. The actual addition of water to the batch may be a prerequisite to further milling but the results are in general usually unsatisfactory. The solution lies in the rechecking of the various factors causing improper milling. In setting the mills, each roll should be checked with a feeler gauge at various spots from time to time and the setting made which best represents the conditions desired. Then the mill should be run with soap and a recheck made on each roll from the flake thickness coming off. This is important, since bearings may not run true and the rolls may spread under pressure. A gain of a few thousandths of an inch is not significant, but should be considered in the setting. If a steel mill is in use, its water temperature in and out should be checked and regulated closely while operating under continuous production. The expansion is considerable and a steel mill perfectly adjusted initially may quickly thin out in the middle after a few minutes operation.

If the mills cannot be set as desired, or are uneven, they require overhauling. Usually refacing will suffice. However, this operation is costly. When used or reconditioned mills are being considered, great care should be taken to examine the faces of the rolls, the bearings and the speed of each roll in relation to the others. Frequently the seller does not know this ratio and if the gears are enclosed, is reluctant to make the necessary examination. Mills used in other industries frequently can be adapted to soap usage, but sometimes only at considerable additional expense so that what appears to be a bargain price may turn out more expensive than new equipment in the long run.

If the bar defect is lumps and

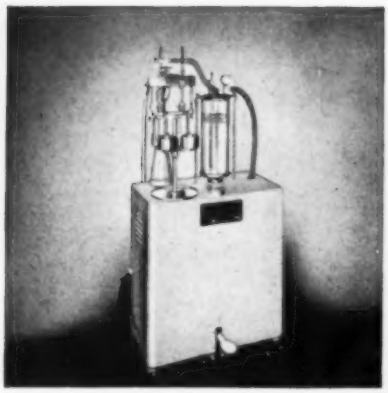
LOWEST FILLING COSTS KNOWN TO INDUSTRY

These U. S. Bottlers' filling units embody production improvements resulting from constant-on-the-job research. All three units are built to standards of perfection that have made U. S. Bottlers' a symbol of dependable performance throughout the world.

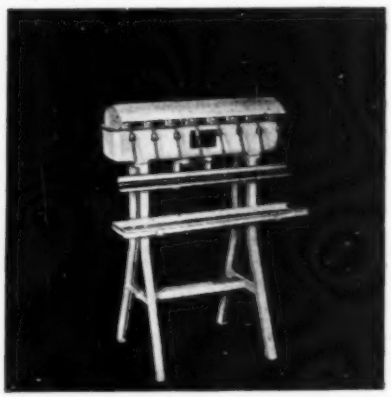


THE U. S. ROTARY VACUUM FILLER
The most widely used automatic filler. Designed for high speed production lines. Built in five sizes for containers up to and including gallons. Has worthwhile advancements and extensive engineering innovations for dependable, uninterrupted production.

Whatever your individual packaging needs may be, write us for technical advice on how to wash, air-clean and fill containers better, faster . . . at lowest costs. For special information, address our engineering department . . . for product information, please write for bulletins on any type U. S. Machine.



U. S. SEMI-AUTOMATIC MODEL B-2 VACUUM FILLER
The most comprehensive filler for hand-fed operation. Interchangeable filling stems for any liquid or semi-liquid. Portable, motor supplied with cord and plug. Interchangeable parts permit handling of various sized containers.



U. S. SIPHON FILLER
A rapid multiple tube filler for any free flowing low viscosity product. Unit requires no power to operate and with proper size tubes will accommodate containers from one ounce to gallons. Thousands in use.

U. S. BOTTLERS MACHINERY CO.

4019 NO. ROCKWELL ST., CHICAGO 18, ILLINOIS

New POLISHED CHROME POWDERED SOAP DISPENSER *by Federal*

FEATURES: Wide-opening top for easy filling . . . Cover anchored to dispenser . . . Small non-clog push up type discharge valve with agitator; prevents packing and insures smooth constant quantity discharge . . . Standard heavy brackets for direct mounting to wall or horizontal pipe.

APPLICATIONS: Industrial Plants, Public Buildings, Office Buildings, Schools, Theaters, Stores, Gasoline Stations—also a practical convenience for the home laundry and kitchen.

MATERIALS: Polished chrome brass container . . . High luster finish . . . Metal valve mechanism . . . Stainless steel spring.

SPECIFICATIONS: Size—9⅜" high x 4" diameter. Weight—2 lbs. 3½ oz. (including bracket). Capacity—1¼ qts. (liquid measure).

NAME PLATES: Individual name plates designed, furnished, and mounted. Quotations on request.

PACKING: Standard packing—1 unit to individual reshipper carton (weight 2 lbs. 9 oz.), repacked 1 doz. to shipping case.

(We do not sell soap powder)

FEDERAL TOOL CORP.
400 N. LEAVITT STREET, CHICAGO 12, ILL.

not sandiness, the fault may lie in the handling of materials. For example, the mills may not be thoroughly cleaned before starting up and odd lumps of dried soap may be getting to the last mill only. Water added to too dry a flake could cause the same trouble as could insufficient time in the amalgamator. Possibly the finished chips may lie around too long before plodding or may be contaminated with scrap etc. In short, anything which interrupts the smooth and continuous flow of soap from amalgamator to plodder could cause such a condition. The dryer chips themselves should be brought to as uniform a moisture content as possible before passing to the amalgamator. It is frequently impossible to obtain this condition in practice. Fresh chips will be dry on the outside, be moist on the inside and require bin conditioning before use. One side of the dryer may run a higher moisture content than the other. Of great use is the practice of spaghetti plodding the chips into covered buggies.

* * *

A recent letter came to hand from a doctor regarding the use of synthetic detergents in dentifrices. As it may reflect a wide spread viewpoint it is given in part here. "A recent patient has been using 'Scoop'(1) as a dentifrice with what appears to be excellent results. No doubt other similar materials will be tried by venturesome housewives."—"Certainly the soaps and abrasive agents generally used in dentifrices have not been too successful in carrying out their intended function and it would seem that the new field of synthetics might offer interesting possibilities." No doubt advertisers of dentifrices will wish time out to tear their hair. Our condolences!

(1) A well known household cleanser and dishwashing compound in a class similar to "Tide," "Surf," "Fab" etc.

Schimmel Issues Price List

Schimmel & Co., New York, recently issued an eight-page price list on their line of essential oils, aromatic chemicals and related products.

New Soap Press

Houchin Machinery Co., Hawthorne, N. J., recently announced a new soap press, which because it requires the operator to use both hands to operate has a strong safety appeal. Neither hand is free while the air ram is in action and there is no foot control. Among the features listed for the new "Safety Air Press" are single or multiple power strokes; any desired period of "dwell" under fingertip control by the operator; desired ranges of density of soap being pressed are attained by "simple adjustments quickly made by the operator"; pressures up to 2,500 pounds per square inch (on Model A), with pressures up to 10,000 pounds per square inch available on other models; air ram cannot move until both hands of the operator are away from the die and are placed upon remote dual air valve controls—operator cannot block off one hand control and operate press with the other, nor can press function unless both right and left hand air controls are depressed simultaneously; automatic electric compressor set available.

Booklet on Fatty Amines

Armour & Co., Chicago, recently issued a 24-page booklet, entitled "The Chemistry of Fatty Amines." Comprehensive data are given on the chemical makeup of the fatty amines, with special attention to those marketed by Armour under the trade names: "Armeens," "Armacs," "Armids," "Arneels" and "Arquads." Tables on solubilities of primary fatty amines in various solvents, composition and constants of high molecular weight aliphatic amines, saturated primary fatty amines, freezing points, ionization constants of ammonia and the fatty amines in water at 25°C., etc., are given in the booklet.

New Atlas Emulsifers

Atlas Powder Co., Wilmington, recently announced two new surface active agents under the trade name, "BRIJ." The new compounds are for use in emulsifying or wetting where stability to high alkalinity or acidity is of primary importance. Samples and commercial quantities are available. Both products are polyoxyethylene lauryl alcohols. "BRIJ 30" is generally water dispersible and oil soluble, being slightly more hydrophilic than "Span 20" (sorbitan monolaurate). "BRIJ 35" is water soluble, and compares in hydrophilic characteristics with "Tween 20" (polyoxyethylene monolaurate). "Span" and "Tween" are registered trade marked products of Atlas. The following are general characteristics of the "BRIJ" products:

	"BRIJ 30"	"BRIJ 35"
Form at 250°C.	Oily liquid	Waxy solid
Viscosity (cp. at 250°C.)	25-125	—
Titer (°C.)	—	35-36
Specific gravity	0.92-0.98	1.18-1.22
Color	Lemon	White

New Theobald Catalog

Theobald Industries, Kearny, N. J., recently issued a 24-page plus cover booklet on their line of cleaning compounds sold under the "Mercury Compound Formulas" trade name. Product information included in the booklet covers descriptions of the material, method of using it and packaging. The booklet is printed in two colors and is pocket size: 4¼ x 7 inches.

Packaging Encyclopedia

Publication of the 1949 *Modern Packaging Encyclopedia*, latest annual edition, was announced last month by Breskin Publishing Co., New York. Designed as a manual for packagers in every type of business, the 990 page volume is broken down into nine major sections, which cover each step in the planning and production of successful packages. The sections are arranged in the same sequence which it it recommended that those actually engaged in developing new or modified packages follow. The new edition is priced at $6.50 in the United States; $9.00 in Canada, including duty and postage, and $11.00 abroad.

Names O'Neill Va. Rep.

Mixing Equipment Co., Rochester, N. Y., manufacturers of mixing and agitation equipment, recently appointed O'Neill Pump and Engineering Co., Richmond, Va., as its representative in Virginia.

PRODUCTS AND PROCESSES

Color Improvement

Surface-active agents can be improved in color by extracting the original hydrocarbon mixtures from which they are made, with a polar solvent in which the hydrocarbon mixture is incompletely soluble. The purified material is then treated further to form light colored sulfonates with surface-active properties. L. J. Beckham and Wm. A. Fessler, to Allied Chemical & Dye Corp. U. S. Patent No. 2,447,308.

Hard Wax for Shoe Polish

A mixture of 70 grams of stearic acid, and 15 grams of paraffin melting at 105°C., is heated for three hours at 130°C. with six grams of soda ash and nine grams of lead carbonate. This gives a substitute for a hard wax, which absorbs much turpentine oil and is suitable for use in shoe polish. Dirk de Wit Hzn. N. V. Dutch Patent No. 61,512.

Chloramine Emulsion

When chlorine is required as a bacteriostatic agent combined with an oil such as liquid paraffin, an emulsion made from chloramine solution of the required strength is an effective preparation. As emulsifier, two per cent of "Lanette" wax will give a thick creamy liquid. G. M. Byron, *Pharm. J.* 161, 316-18 (1948).

Sulfonating Benzene

Benzene is sulfonated by passing the vapor into sulfuric acid at 85-110°C. until the temperature rises 70°C. higher, but not over 180°, and completing the sulfonation at 140-165°. J. B. Maguire and D. F. Gould, to Allied Chem. & Dye Corp. Canadian Patent No. 451,319.

Glass Cleaner

A detergent composition for cleaning polished glass surfaces consists of an aqueous solution of about five to 30 per cent of 2-methyl-2,4-pentane diol, and a wetting agent of the alkylated sulfonate type. W. C. Gasgleff, to The Drackett Co. Canadian Patent No. 452,518.

Cake Detergent

A detergent composition in cake form consists of 85 per cent by weight of a solid reaction product consisting of lauric acid containing at least fifteen 1,3-dioxolane groups, 10 per cent sodium lauryl sulfate, and five per cent water. D. J. Loder, to Canadian Industries Ltd. Canadian Patent No. 451,808.

Soap Sheet

Two superimposed sheets of open unsized paper are made with a layer of soap interposed between them. The soap acts as a binder to hold the sheets together. When the combination is wet with water and rubbed, the paper disintegrates, the fibers are released and flow away with the water used to dissolve the soap. J. H. Muise. Canadian Patent No. 452,240.

Detergent Manufacture

In preparing detergent compositions in iron-containing equipment by sulfonating organic compounds and neutralizing, an improvement in the process consists of addition of a phosphoric acid or a phosphate in an amount sufficient to inhibit corrosion of equipment, but insufficient to cause reaction of the organic compounds with the phosphate. R. P. McGhie, to Colgate-Palmolove-Peet Co. Canadian Patent No. 451,472.

Oil-Water Emulsions

A mixture of oil and water is much more easily emulsified when a water-soluble soap such as sodium laurate, and an oil-soluble monoglyceride such as monoolein, are used together. They give more stable emulsions than when either agent is used alone.

The type of emulsion obtained depends on a complex interplay of various physical factors. It is possible to obtain either oil-in-water or water-in-oil emulsions over a considerable range of phase-volume ratios when a suitable emulsifying technique is used. In some circumstances complex emulsions are obtained. The results depend on the particular combination of emulsifying agents and to some extent on the nonpolar nature of the oil phase. W. Dickinson and J. Iball, *Research* 1, 614-17 (1948).

Organic Sulfonates

In the manufacture of a sulfonated alkyl aryl condensation product obtained by chlorinating a liquid petroleum distillate from a Pennsylvania-grade crude containing seven to 19 carbon atoms, and condensing this with an aromatic compound, an improvement in the process consists of subjecting the condensation product to a sulfuric-acid extraction with five to 20 percent of its weight of 95-100 percent sulfuric acid at 10-40°C. The sulfuric-acid extract is separated from the condensation product prior to final sulfonation. L. H. Flett, to National Aniline & Chem. Co. Inc. Canadian Patent No. 452,268.

Antioxidants

Two new antioxidants, "Tenox HQ" and "Tenox BHA," have been developed by the Tennessee Eastman Corp. Added to fats and oils during processing, small percentages combat oxidative rancidity. "Tenox HQ" is a highly purified form of hydroquinone, while "Tenox BHA" is butylated hydroxy anisol; the latter is of special value in stabilizing animal fats.

Sulfonated Ether

A sulfonated ether is prepared consisting of sulfonated methallyl oleyl ether with surface-active properties. A water-soluble salt may also be made. D. Price and B. A. Dombrown, to National Oil Products Co. Canadian Patent No. 452,541.

Coconut-base Detergent

A new coconut-base synthetic detergent called "Hi-10" is made by Eureka Chemical Corp. of Los Angeles. The product is made by combining coconut oil with amines.

NEW PATENTS

Conducted by
Lancaster, Allwine & Rommel

PATENTS, TRADEMARKS AND COPYRIGHTS

402 Bowen Building, Washington, D. C.

Complete copies of any patents or trade-mark registration reported below may be obtained by sending 50c for each copy desired to Lancaster, Allwine & Rommel.

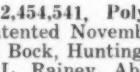
No. 2,452,724, Soapmaking Process, patented November 2, 1948 by George B. Bradshaw, Wilmington, Del. A continuous process for producing soap is covered, which comprises continuously forming a water-in-oil type emulsion by continuously adding approximately stoichiometrical proportions of a concentrated aqueous, caustic alkali solution and of lower alkyl esters of higher fatty acids to an agitated body of such an already formed emulsion maintained at a temperature of about 35° to 65° C. and containing from 10% to 25% of soap, passing this emulsion at the rate it is formed through an enclosed space in which it is maintained at a temperature of from about 100°C. to below 140°C. under autogenously developed pressure, until nearly complete saponification of the fatty acids has taken place, and then reducing the pressure on the reaction mixture as it emerges from said enclosed space sufficiently to evaporate off the major part of the lower alcohol and a substantial part of the water present therein, whereby said reaction mixture is cooled and a solid soap of excellent commercial purity is obtained.

No. 2,452,725, Soapmaking Process, patented November 2, 1948 by George B. Bradshaw, Wilmington, Del. A process for making soap is patented which comprises saponifying a mixture of lower alkyl esters of higher fatty acids and an aqueous soap solution by adding caustic alkali to said mixture in several successive stages at temperatures between about 100°C. and about 120°C. under autogenous pressure and continued agitation, adding to the resulting, hot saponification product a cool, dilute, aqueous solution of an electrolyte, thereby reducing the temperature of the resultant mixture to about 85°C., permitting said mixture to settle at atmospheric pressure, and then separating the neat soap from the nigre therein.

No. 2,452,759, Insecticide Containing Methylated Naphthalene and 4, 4' Dichloro-Phenyl-Trichloroethane, patented November 2, 1948 by Julius Hyman, Chicago, Ill., assignor to Velsicol Corp., Chicago, Ill., a corporation of Illinois. An insecticide is covered containing as active ingredients an insect toxic proportion of methylated naphtalene and 4,4' dichloro-diphenyltrichloroethane.

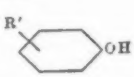
No. 2,453,076, Crystallization of DDT, patented November 2, 1948 by Kenneth B. Little and John J. Burton, Easton, Pa., assignors to J. T. Baker Chemical Co., Phillipsburg, N. J., a corporation of New Jersey. The patent covers the process of solidifying DDT (dichlorodiphenyl trichloroethane) in hard crystalline form which includes cooling molten DDT to a temperature not above about 60°C. without solidification, whereby a supercooled liquid is obtained, and permitting the supercooled liquid to crystalize.

No. 2,454,541, Polymeric Detergents, patented November 23, 1948 by Louis H. Bock, Huntingdon Valley, and James L. Rainey, Abington, Pa., assignors to Rohm & Haas Co., Philadelphia, Pa., a corporation of Delaware. The patent covers water-soluble, polymeric detergents formed by condensing by heating (a) one mol of a phenol having the formula.



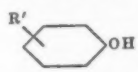
in which R is a saturated hydrocarbon substituent containing eight to eighteen carbon atoms, and (b) from 0.5 to 1.0 mol of formaldehyde, and then reacting therewith (c) from eight to sixty mols of an alkylene oxide from the class consisting of ethylene oxide, propylene oxide, and butylene oxide.

No. 2,454,542, Polymeric Detergents, patented November 23, 1948 by Louis H. Bock, Huntingdon Valley, and James L. Rainey, Abington, Pa., assignors to Rohm & Haas Co., Philadelphia, Pa., a corporation of Delaware. The patent covers water-soluble polymeric detergents formed by condensing by heating (a) one mol of a phenol from the class consisting of ortho-substituted and para-substituted phenols, said phenol having the formula



in which R' is a saturated hydocarbon substituent containing eight to eighteen carbon atoms and (b) from 0.5 to 1.0 mole of formaldehyde, then reacting therewith (c) from one to twenty-one moles of an alkylene oxide from the class consisting of ethylene oxide, propylene oxide, and butylene oxide then (d) esterifying the resultant alcohol with one mole of a polybasic acid from the class consisting of sulfuric and phosphoric acids, and finally (e) neutralizing the product of esterification to form therefrom a salt of a metal from the class consisting of alkali and alkaline earth metals.

No. 2,454,543, Polymeric Detergents, patented November 23, 1948 by Louis H. Bock, Huntingdon Valley, and James L. L. Rainey, Abington, Pa., assignors to Rohm & Haas Co., Philadelphia, Pa., a corporation of Delaware. The patent covers a modified phenol-formaldehyde condensation product having detergent properties wherein the phenol-formaldehyde condensate is an oily to brittle resinous condensation product of from 0.5 to 1.0 mol of formaldehyde and one mol of a phenol from the class consisting of ortho-substituted and para-substituted phenols, said phenol having the formula



in which R' is a saturated hydrocarbon substituent containing four to eighteen carbon atoms, and wherein the modification of said condensation product consists of the group

$$-(RO)y\text{-}R\text{-}SO_3M$$

replacing the original phenolic hydrogen atoms and being attached to each phenol nucleus in said condensate through the phenolic oxygen atom thereof, wherein R in both occurrences is the same saturated alkylene group containing two to four carbon atoms, y has a value of 0 to 19 inclusive, and M is a metal from the class consisting of alkali and alkaline earth metals.

No. 2,454,544, Polymeric Detergents Comprising Water-Soluble Salts of the Half-Esters of Dicarboxylic Acids and the Formaldehyde Condensates of Hydrocarbon-Substituted Phenoxy-Polyalkoxy Alkanols, patented November 23, 1948 by Louis H. Bock, Huntingdon Valley, and James L. Rainey, Abington, Pa., assignors to Rohm & Haas Co., Philadelphia, Pa., a corporation of Delaware. The patent covers a modified phenol-formaldedyde condensation product having detergent properties wherein the phenol-formaldehyde condensate is an oily to brittle resinous condensation product of from 0.5 to 1.0 mol of formaldehyde and one mol of a phenol from the class consisting of ortho-substituted and para-substituted phenols, said phenol having the formula

in which R' is a saturated hydrocarbon substituent containing eight to eighteen carbon atoms and wherein the modification of said condensation product consists of the group

$$-(RO)y\text{-}R\text{-}OCO\text{-}R''\text{-}(COOM)z$$

replacing the original phenolic hydrogen atoms and being attached to

(*Turn to Page* 139)

LAUNDRY STARCHES

(*From Page 36*)

most important requirements. The product must not support mold or similar growth. It is felt that the ideal liquid starch should also contain a light-fast bluing that will impart a good blue to white clothes without affecting other colors. It is also desirable that the product penetrate readily, be non-sticking and mildly perfumed.

These, of course, are essentially consumer requirements. From the manufacturer's viewpoint the flow characteristics of the liquid starches are most important. The products must be sufficiently fluid to permit the use of automatic bottling equipment. The finished product must flow readily from the bottle when cool yet provide sufficient body to impart a desirable finish to the fabric when diluted for use.

To meet these several requirements, producers now use a more or less standardized procedure. Usually from eight to 10 per cent (dry basis) of solubilized starch is dissolved in cold water. Boiling water is added, the mixture being stirred and held at 100°C. for several minutes. The starch is then cooled and, while stirring, pine oil is added, followed by the incorporation of a small amount of bluing. The pine oil, it may be noted, serves a number of functions. It acts as a penetrant, dispersing agent, mildew and mold preventive, and as a perfume.

It has been pointed out (32) that the Spilka patent,(33) granted in 1941, was one of the first to describe the new type of liquid starch. According to the specifications, a nonseparating, nonsticking, fiber-penetrating liquid starch contains the following ingredients in each gallon of water:

Starch	12 oz.
Sodium fluoride	½ oz.
Pine oil	½ oz.

Various modifications or improvements of this basic composition have been proposed. For example, according to a recent patent (34) the liquid starch compositions consist of mixtures of thin-boiling corn starch, pine oil or trisodium phosphate as antiseptics, and a suitable bluing, like Prussian blue. Another, newer patent (35) describes a homogeneous, semi-liquid, prepared starch which does not separate when diluted for specific types of work. Said to provide a "velvety," soft stiffness, a typical preparation contains:

Corn starch	100-119.8	Gm.
Sodium benzoate	2.51 5.0	Gm.
Stearic acid	5	Gm.
Triethanolamine	6-10	cc.
Beta pine oil	10	cc.
Water, to make	1	liter

The patent also specifies that waxes, bluing and various salts may be incorporated in the starches to improve their action.

A review (32) of the liquid starch field indicates that it offers considerable promise for the small producer and distributor; permitting him to compete with the larger manufacturer. Of definite interest in this connection is the fact that suitable raw materials are now being made available by starch suppliers. One such material is described as a "white powdered, well lubricated, slow congealing starch product especially designed for the manufacture of liquid laundry starch for the retail trade." The manufacturer's data sheet (36) provides adequate directions for making the liquid starches.

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BIDS AND AWARDS

(*From Page 59*)

Lasting Products Co., Baltimore, item 1, $1.08, item 2, 17 cents; Oil Specialties & Refining Co., Brooklyn, item 1, 81.5 cents and item 2, 12.7 cents; Huntington Labs., Huntington, Ind., item 1, $1.45 and item 2, 27 cents; John J. Lanczyski, New Bedford, Mass., item 1, $4.56; John C. Stalfort & Sons, Baltimore, item 1, 95.2 cents and item 2, 23.99 cents; Beacon Co., Boston item 1, $1.40; New Jersey Chemical Co., Lyndhurst, N. J., item 1, $1.59 and item 2, 17 cents; Ches-White Co., Baltimore, item 1, 74 cents and item 2, 15.3 cents; American Janitor Supply Co., Washington, D. C., item 1, 88 cents and item 2, 22 cents; D. A. Collins Mfg. Co., Brooklyn, item 1, 85 cents and item 2, 19.25 cents.

pears to be a simple operation, requires more thought than the superficial consideration too often given to it.

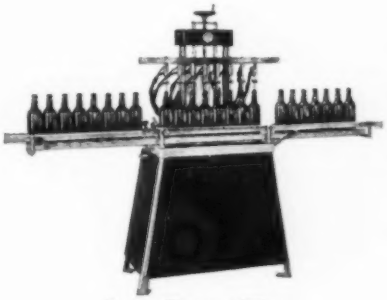
From Our Advertising Pages

THERE is no scarcity of newer type chemicals for the soap and detergent industry. Every issue of *SOAP* finds new and useful chemicals offered. Many of these are exactly what is needed to give a shot in the arm where a new product is needed to arouse interest in a line of soaps or sanitary chemicals. When we thumbed our way through recent issues of this periodical, we noted several newcomers and more old timers offering new or improved items.

Publicker Industries, Philadelphia, is offering "HHS," a new, low-priced surface agent as a washing agent for railroads, airlines, trucks etc. that dries brightlywithout wiping. Sanitary Soap Co., Paterson, N. J., offer "Lanelle," an antiseptic hand soap containing lanolin. Hooker Electro Chemical Co., Niagara Falls, N. Y., calls attention to chlorotoluene derivatives and their usefulness in organic synthesis. Emery Industries, Cincinnati, are advertising their new stearic acid called "Emersol 132," which has an Iodine Value under 1. By use of "Emersol 132" purer, more stable, bland odored, better colored finished products containing stearic acid are feasible. Onyx Oil and Chemical Co., Jersey City N.J., have a novel advertisement on "Onyx Ionics," which improve the quality of detergents. Maywood Chemical Co., Maywood, N. J., offer "Maypon and Maypon 4C" for cosmetics. They will send samples and literature regarding the use of their product for sudsing and detergent uses. Bersworth Chemical Co., Framingham, Mass., tells about "Versene," useful as a water softener, soap clarifier, anti-oxidant and purifying agent. Monsanto Chemical Co., St. Louis, gives interesting information on their various types of "Santomerse" wetting agents and detergents.

Folder on Packer Fillers

Packer Machinery Corp., New York, recently issued a folder on its line of vacuum and gravity filling equipment. The folder contains an illustrated step-by-step outline of the operation of the machine, which is



Packer Vacuum Filler

available in five, eight, 10 or 12 spout models. Packer vacuum filling machines can be used for bottles ranging in size from fractional ounces to gallon jugs and cans up to quarts. Metal parts that come in contact with liquid are made of stainless steel or nickel plated brass. Flexible tubing of "Neoprene" or special plastics can be furnished.

Will Corp. Bulletin

The new Beckman "Model B" glass prism spectrophotometer is described in the December issue, No. 105, of *Laboratory Equipment Bulletin*, bi-monthly publication of Will Corp., Rochester, N. Y. In addition, the current bulletin discusses a new Will laboratory safety feature—a beaker holder, for large size beakers, constructed of stainless steel frame with asbestos padded handles. Other new laboratory apparatus illustrated are the "TiTray" Titration Illuminator, the Lindberg Hot Plate, Model H-5 and the Ohaus Triple Beam Balance in stainless steel. Copies of Bulletin #105 are available from Will Corp. by writing Dept. SOP-1, Rochester 3, N. Y.

New Wetting Agent

A new wetting agent, "Hartofol C," was announced recently by Hart Products Corp., New York. The new compound, a concentrated alkylated aromatic sulfonate, is a liquid gel. It is said to be stable to both organic and mineral acids as well as alkalies.

New Stauffer Catalog

Stauffer Chemical Co., New York, recently published a 108-page, illustrated product catalog. Complete descriptions of all Stauffer chemicals, their properties, grades, analyses, principal uses, packing, shipping regulations and stocks are covered. Included also are baume tables, dilution formulas, equivalents, general data and miscellaneous tables for ready reference. Copies of the catalog are available upon request by writing the firm at 420 Lexington Ave., New York.

Chemical Marketing Book

A new book, "The Marketing of Chemical Products," by Robert S. Aries and William Copulsky was announced recently by Overland Commercial Corp., Brooklyn publishers. The 150-page book, which covers such subjects as market research, commercial chemical development, technical sales and advertising, and technical service in the chemical industry, retails for $5. The new volume is edited by Robert S. Aries, marketing consultant and adjunct professor of chemical engineering economics at Polytechnic Institute of Brooklyn and William Copulsky, former editor of *Industrial Trends* magazine.

To Sell Niro

The opening of New York offices at 52 Broadway for the sale and distribution in the United States of spray drying equipment originated by Niro Atomizer, Ltd., Copenhagen, Denmark, was announced recently by Niro Corp. Niro spray drying equipment, the principal feature of which is the atomizer head, has been used extensively throughout Europe during the past 20 years. The equipment's atomizer head is of specially designed high speed, rotary type that ejects the liquid product as a mist into the drying chamber. Circulating hot air surrounds the mist as it enters the chamber and evaporates its water content. The dry content falls to the bottom of the chamber as a fine powder and is funnelled out as a finished, easily soluble product ready for packaging.

Soaps At 36th Annual Safety Conference

AMONG the 200 exhibits at the 36th Annual Safety Conference in Chicago recently, were displays of industrial soaps, protective creams, sanitary chemicals, sanitation maintenance equipment and supplies from the following 22 companies:

John H. Breck, Inc., Springfield, Mass., industrial skin preparations; Canfield Oil Co., Cleveland, O., oil absorbents; Diversey Corp., Chicago, cleaning compounds, hand cleaners, oil and grease absorbents; C. B. Dolge & Co., Westport, Conn., protective creams, skin cleansers, cutting oil compounds, products for athlete's foot control; Finnell System Inc., Elkhart, Ind., floor maintenance materials; Hild Floor Machine Co., Chicago, floor scrubbing and polishing machines; Hillyard Sales Co., St. Joseph, Mo., sanitation products; Huntington Laboratories, Huntington, Ind., sanitary supplies, liquid soaps, disinfectants, insecticides, floor finishes and machines; Walter G. Legge Co., Inc., New York, floor polishes and floor treatments; Lightfoot Schultz Co., New York, industrial soaps, powdered, bar, paste and hand lotions; Milburn Co., Detroit, Mich., protective skin creams and safety clothing; Oil-Dri Corp. of America, Chicago, oil and grease absorbents; Onox, Inc., San Francisco, Calif., products for athlete's foot prevention; G. H. Packwood Mfg. Co., St. Louis, Mo., industrial skin cleansers, soap dispensers; Peda Spray Co., New York, products for athlete's foot prevention; Stepan Chemical Co., Chicago, skin cleansers; Sugar Beet Products Co, Saginaw, Mich., skin cleansers; G. H. Tennant Co., Minneapolis, Minn., floor maintenance machines and supplies; Waverly Petroleum Products Co., Philadelphia, Pa., oil absorption materials; West Disinfecting Co., Long Island City, N. Y., disinfectants, deodorants, sanitation products; Wyandotte Chemicals Corp., Wyandote, Mich., absorbents.

At the Congress, awards for achievements in the diverse divisions and classes of the Council's chemical section contest were presented to 136 of 400 concerns participating. Among companies having perfect no accident records for the year were two Procter & Gamble plants at Kansas City, Kansas, and Macon, Ga. The Pepsodent div. of Lever Bros. Co., was also a no accident winner. Eleven other P. & G. plants and three other Lever Bros. plants likewise received awards for their accident reduction records.

Among other chemical plants with perfect no accident records were 44 separate E. I. du Pont de Nemours & Co. establishments, and plants of Hercules Powder Co., Atlas Powder Co., American Cyanamid Co., Carbide & Carbon Chemical Corp., Pennsylvania Salt Mfg. Co., Stauffer Chemical Co., Chipman Chemical Co., and the Koppers Co.

Safety awards were also conferred in various classes, among others, to Monsanto Chemical Co., Wyandotte Chemicals Corp., Diamond Alkali Co., Davison Chemical Corp., U. S. Industrial Chemicals, Inc., Niagara Alkali Co., Lambert Pharmacal Co., Westvaco Chemical Corp., International Minerals & Chemicals Corp., and Rohm & Haas Co.

In the election of chemical section officers for the 1948-49 term, S. M. MacCutcheon of Dow Chemical Co. was chosen to succeed Allen L. Cobb of Eastman Kodak Co. as chairman; John J. Hoffman, Monsanto Chemical Co., was advanced from secretary to vice chairman and John R. Bollman of Procter & Gamble Co. was selected as secretary.

Prominent in the safety exposition at the Chicago affair was the booth of the National Association of Insecticide & Disinfectant Manufacturers, with its automatic device for continuous display of posters setting forth the industry's code of ethics and the services rendered by its members in the interest of health, sanitation, maintenance and safety.

General chairman of the NAIDM exhibit committee was F. J. Pollnow, of Vestal, Inc., St. Louis, Mo. Assisting him as hosts at the booth during the week were Dr. A. G. Grady and F. O. Huckins, Sinclair Refining Co., E. Chicago, Ind.; Marshall L. Magee, T. H. Washburn Co. and David Lynch, Velsicol Corp., Chicago; George Radford, Rohm & Haas Co., Philadelphia; Henry Frazin, Central Can Co., Chicago; and Mr. Green of Standard Oil, (Ind.). Other members of NAIDM from the Chicago area also volunteered for service at various times during the show.

TRADE MARKS

(*From Page 63*)

tories, Detroit. Claims use since Sept. 10, 1946.

BLUE ROSE—This for shampoo. Filed Dec. 18, 1947 by Lanchere, Inc., Chicago. Claims use since Mar. 26, 1912.

W-B — This for insecticides. Filed Oct. 18, 1947 by A Reed Wilson Co., Kansas City, Mo. Claims use since Nov. 10, 1932.

NATURO—This for disinfectant. Filed Nov. 22, 1947 by Naturo Mfg. Co., Los Angeles. Claims use since 1927.

CLOROX—This for cleansing compound. Filed Nov. 25, 1947 by Clorox Chemical Co., Oakland, Calif. Claims use since 1934.

"GY-BEN"—This for insecticides. Filed Dec. 3, 1947 by Geigy Co., New York. Claims use since Oct. 27, 1947.

GLID-N—This for insecticides. Filed Dec. 24, 1947 by Glidden Co., Cleveland. Claims use since Feb. 6, 1947.

CHEM. TUNE—This for chemical composition for use in removing carbon deposits and dirt from internal combustion engines. Filed Mar. 18, 1948 by V-O Manufacturing Co., North Hollywood, Calif. Claims use since Mar. 15, 1946.

ELECTRO - AIR — This for germicidal lamps. Filed July 19, 1947 by Electro Maunfacturing Co., Chicago. Claims use since July 10, 1939.

NON - PAREIL — This for cleaner. Filed July 5, 1947 by Procter & Gamble Co., Cincinnati. Claims use since August, 1938.

LAUNETTE—This for sudsing cleaner. Filed July 5, 1947 by Procter & Gamble Co., Cincinnati. Claims use since July 1, 1932.

NO-EQUAL—This for sudsing cleaner. Filed July 5, 1947 by Procter & Gamble Co., Cincinnati. Claims use since July 1930.

SARATOGA—This for sudsing cleaner. Filed July 5, 1947 by Procter & Gamble Co., Cincinnati. Claims use since Dec., 1927.

ORVUS — This for sudsing cleaner. Filed July 5, 1947 by Procter & Gamble Co., Cincinnati. Claims use since Nov. 4, 1932.

ZORBALL — This for floor sweeping compound. Filed Nov. 12, 1947 by Wyandotte Chemicals Corp., Wyandotte, Mich. Claims use since June 3, 1947.

STALFORT'S '68—This for shoe paste and shoe cleaner. Filed Nov. 25, 1947 by John C. Stalfort & Sons, Inc., Baltimore. Claims use since Dec. 31, 1926.

SANITARY PRODUCTS
A SECTION OF SOAP

IN announcing recently a project for testing and recommending "satisfactory" brands of floor waxes to its members, the American Hotel Association, we believe, has placed itself in a very questionable position. Suppliers of floor waxes are asked to pay the cost of the AHA research and testing program, and pay at what appear to be fancy prices. The object ostensibly is to make up a list of floor waxes which AHA may "recommend" to its members. Projects on rug shampoos and dishwashing compounds have already been undertaken and investigation of other cleaning compounds is to follow.

To us, any such undertaking by an organization with the prestige and standing of AHA,—its officers and membership comprise the top hotel executives of America,—is quite amazing. We feel that its officers cannot understand the background and real significance of certain other so-called "research" projects and lists of approval. That these are in rather bad repute in industry, that they are generally looked upon as an out-and-out shakedown of suppliers, that the ultimate findings can be of little real value to the consumer in the absence of an expensive policing system, that trade associations of suppliers consider them a racket, oppose them vigorously and generally suggest that their members refuse to participate, that they are subject to serious abuses, that they mislead the consumer, and that manufacturers with "guts" usually refuse to be coerced into participation,—all these things we imagine are little known to the officers and board of AHA.

If AHA really wants to give its members a product recommendation service for the benefit of such members alone, then AHA, we feel, should pay the bill,—and not the suppliers. And it should test *all* products, not just those which the suppliers send in, and, significantly, pay $150 for "testing." We urge wax manufacturers to refuse flatly to participate in spite of AHA prestige and the implications which may arise out of their absence from any such "product approval list."

WORD has seeped out that flies and other insects build up a resistance to DDT, that control results in 1948 were poor compared to former years. And as is usual with word of the first failure in any situation, the volunteer anvil chorus has already rushed into the papers and consigned DDT to the junk heap. Not waiting for all the facts, not looking beyond the early reports, the first rumor was enough to start the ball rolling.

However, according to Dr. E. F. Knipling of USDA before the recent NAIDM meeting in New York, there were some failures in DDT fly control in 1948 and flies appear to build up a resistance to DDT. But that does not mean that DDT is dead by a long shot. Dr. Knipling said that USDA will continue to recommend DDT in 1949, and that there is a suspicion that some of the failures were not altogether due to DDT, but also to insufficient dosages and to inadequate accompanying sanitary measures. He hinted that flies might be changing their habits and that those once exposed to DDT might possibly thereafter find it repellent.

The answer to DDT fly resistance? USDA will probably recommend the addition of other materials, chlordane, methoxychlor, and pyrethrum in greater amount to DDT insect spray formulations. If one thing fails to kill them, one of the others will. But, those who are ready to play a funeral dirge for DDT had better change their music. It is far from dead, although we would not be surprised to see a marked revival in pyrethrum insecticides in 1949.

NAIDM MEETS . . .

. . . look for 1949 insecticide sales increase . . . discuss DDT fly problem . . . predict rise in aerosols . . . consider wax test methods, quaternary uses . . . plan broadening of activities . . . Baird re-elected president

ENTHUSIASTIC participation in the discussions of the aerosol and insecticide forums highlighted the program at the 35th annual meeting of the National Association of Insecticide and Disinfectant Manufacturers, held at the Hotel New Yorker on December 6th and 7th.

A well arranged and diversified program covering aerosols, insecticides, waxes, quaternaries and the legal aspects affecting manufacturers comprised the papers presented during the two day session. Members of the committee arranging the program were Carter Parkinson, chairman, McCormick & Co., Baltimore; J. E. Ferris, Niagara Alkali Co. and Melvin Goldberg, Pesticide Advisory Service, New York; John A. Marcuse, West Disinfecting Co., Long Island City, N. Y.; and John Powell, John Powell & Co., New York.

The meeting opened with the address of the president, Gordon M. Baird, Baird & McGuire Inc. Holbrook, Mass., followed by the report of H. W. Hamilton, H. W. Hamilton Co., New York, secretary of the association. (Mr. Baird's address appeared in the Dec. 1948 issue of *Soap and Sanitary Chemicals*, as did Mr. Hamilton's report.)

The annual election resulted in no change in the list of officers, retaining as first vice-president, L. J. Oppenheimer, West Disinfecting Co., New York; second vice-president, C. L. Weirich, C. B. Dolge Co., Westport, Conn.; and treasurer, John Powell, John Powell & Co., New York.* The next meeting of the Association will be held at the Hotel Drake, Chicago on June 13, and 14, 1949.

Newly elected members of the board of governors include: T. Carter Parkinson, McCormick & Co., Baltimore, Md.; R. T. Yates, Hercules Powder Co., Wilmington, Del.; and J. L. Brenn, Huntington Laboratories Inc., Huntington, Ind. Members re-

* Mr. Powell later resigned as treasurer. See page 149.

NAIDM OFFICERS AND GOVERNORS

Front row: John Powell, treasurer; H. W. Hamilton, H. W. Hamilton Co., New York, secretary; Mrs. E. D. Sullivan; Gordon Baird, Baird & McGuire, Inc., Holbrook, Mass., president; Leonard Oppenheimer, West Disinfecting Co., Long Island City, N. Y., first vice-president; Clarence L. Weirich, C. B. Dolge Co., Westport, Conn., second vice-president; second row, Melvin Fuld, Fuld Brothers, Co., Baltimore; Preston B. Heller, B. Heller & Co., Chicago; Robert C. White, Jr., Robert C. White Co., Philadelphia; Howard F. Williams, J. L. Watkins Co., Winona, Minn.; J. L. Brena, Huntington Laboratories, Inc., Huntington, Ind., and Carter Parkinson, McCormick & Co., Baltimore, all governors. Not pictured: Richard Yates, Hercules Powder Co., Wilmington, Del. and N. J. Gothard, Sinclair Refining Co., East Chicago, Ill., governors.

tained on the board are as follows: Melvin Fuld, Fuld Bros., Baltimore, Md.; N. J. Gothard, Sinclair Refining Co., East Chicago, Ind.; Preston B. Heller, B. Heller & Co., Chicago, Ill.; Paul L. Robbins, George B. Robbins Disinfectant Co., Cambridge, Mass.; Robert C. White, Jr., Robert C. White Co., Philadelphia; and H. F. Williams, J. R. Watkins Co., Winona, Minn.

AN open forum discussion of "Factors Responsible for Recent DDT Failures to Control House Flies" at the Dec. 7 afternoon session, attracted a large attendance and brought into the open some of the latest findings on this highly important and recently much discussed question. Dr. Alfred Weed of John Powell & Co. acted as the moderator, with Dr. E. F. Knipling of the Division of Insects Affecting Man and Animals, U.S.D.A., Washington, as the principal speaker.

Dr. Knipling indicated that as early as 1947 reports began to reach the department of cases in which

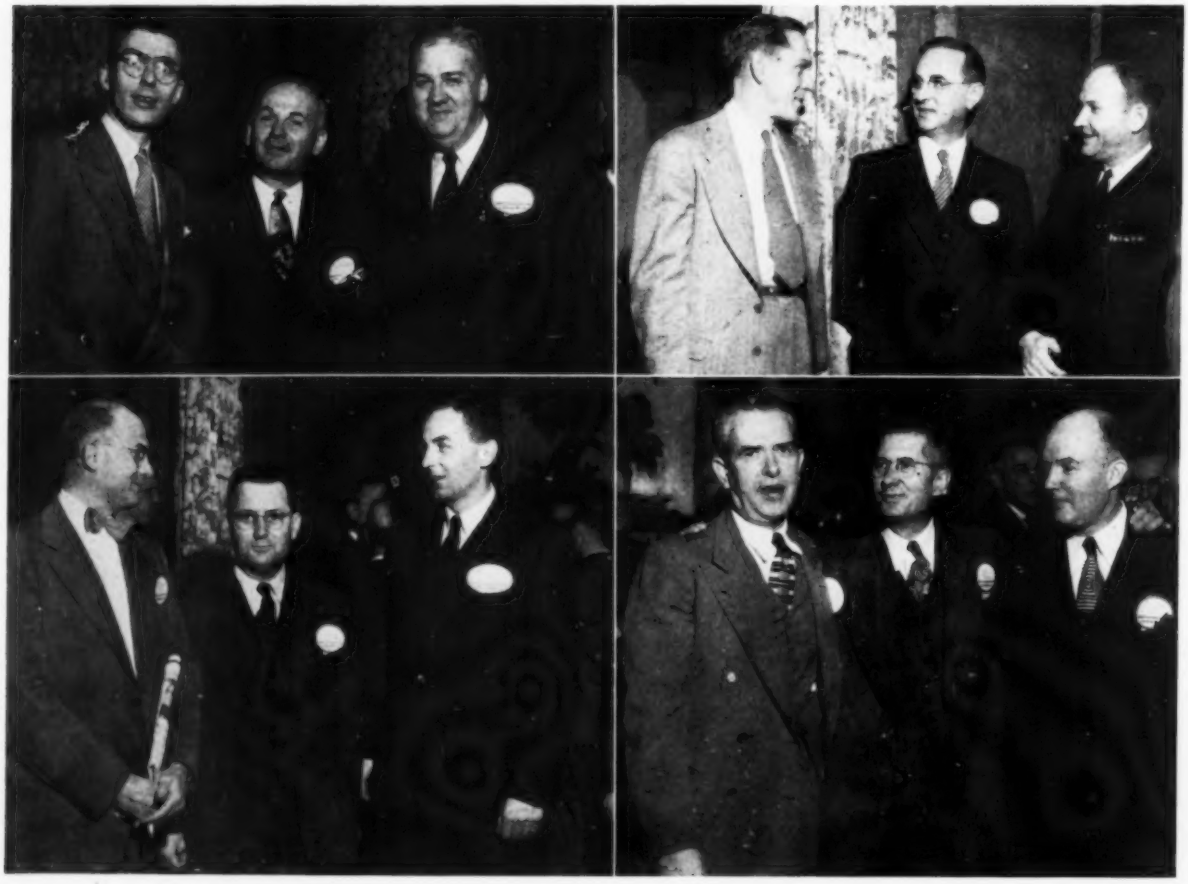
residual deposits of DDT showed a declining ability to control house flies. With such cases being encountered in increasing numbers in 1948, research was immediately started at the Orlando and Kerrville station in an attempt to determine the cause. It was found that in many cases failure of the persons applying the insecticide to follow recommended procedure was partially responsible for the inadequate control. For instance, application of dosages lower than those suggested, failure to treat all of the important resting places for flies and failure to employ adequate sanitary measures to reduce fly breeding along with the residual spraying, were all responsible in one degree or another for some of the cases of unsatisfactory control.

Another factor investigated was the possibility that the habits of flies were changing, and flies exposed to residual deposits of DDT might be avoiding the DDT deposits and through some possible repellent effect of the deposit perhaps not resting long enough on sprayed areas to receive a toxic dose. Most failures, incidentally, were encountered at places where DDT had been applied for two or three years previous, and it seemed rather obvious that the ineffective control was connected in some direct way with such previous use. High temperatures were also mentioned as a contributing factor. Wettable powders showed up somewhat better in the test studies than did oil emulsions or oil solutions, but rates of kill were definitely down for all three forms as compared with the experience of two or three years ago. Although the factors mentioned all exerted some influence, it was apparent that there were other important factors which were also contributing. The question of flies developing resistance to DDT was considered a possible factor and extensive tests were conducted on this aspect.

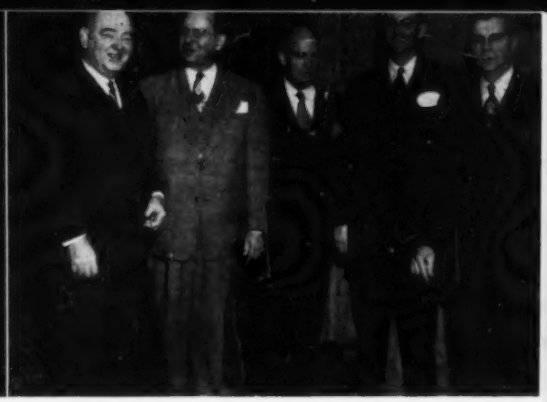
Flies collected around a dairy barn where previous generations had been exposed to DDT for several years showed only 36% mortality of females in 60 minutes, for instance, in one test spraying, while laboratory flies from a non-resistant strain exhibited 100% mortality in 10 minutes at the same strength DDT application. Other test work indicated that DDT-resistant flies require 20 to 40 times the period of contact needed for controlling the

New NAIDM Director

RICHARD YATES







non-resistant strains.

Dr. Knipling reported further that in addition to developing this resistance to DDT, house flies also seem to build up a companion resistance to other insecticides such as chlordane and methoxychlor, although not such a comparatively high resistance. Possibilities are seen in the idea of rotating insecticide treatments from month to month, or from season to season, much as crops are rotated. There also seems to be a favorable possibility that combination sprays incorporating other toxic agents might be less affected than the straight DDT residual type.

Pending further investigations both in the laboratory and field with various insecticides, the Bureau's position for 1949, said Dr. Knipling, will be to continue to recommend DDT. Although it failed in many situations in 1948, it was also successful in many cases, and even where there may have been failures, there was still a considerable reduction in fly populations. Recommendations for '49 will stress the need for adequate strength sprays, proper application, and better sanitation to reduce breeding to a minimum. It will be suggested also that chlordane and methoxychlor be considered as substitute treatments.

Open floor discussion of the subject in which Dr. Robert C. White of Robert C. White Co., Philadelphia, and Friar Thompson of R. J. Prentiss & Co., New York, were prominent, emphasized, that while DDT sprays of the residual type may not be giving as excellent results as were noted two or three years ago, the old-type pyrethrum space sprays are still very effective in controlling flies in dairy barns. On a motion by Mr. Thompson, the Insecticide Marketing Committee of the N.A.I.D.M. was instructed to get all available information on the topic from the Insecticide Scientific Committee and to consider issuing a bulletin to the trade, advising that in 1949 space sprays be alternated with residual sprays to assure maximum control.

PLAN NAIDM EXPANSION

A plan for broadening the scope of activities of the National Association of Insecticide & Disinfectant Manufacturers is reported under study by the Board of Governors of that association. Proposed expansion would include a wider range of services among manufacturers of floor waxes and other floor products, soap and detergent specialties and aerosol products in addition to current activities in disinfectants, deodorants, insecticides and allied fields. The plan is stated to call for a new set-up of five sections with elected chairmen and a change in name of the 35-year old association.

AT the forum on low pressure aerosols, at which Melvin Goldberg, Pesticide Advisory Service, New York, acted as moderator, aerosols were discussed from the standpoint of customer acceptance, mechanical performance, effectiveness, and application to fields other than insecticides. Prior to an open discussion of the subject, several members of the association, experts in their respective fields, were called on to discuss certain phases of the topic. Leonard Cannella, Continental Can Co., New York; Norman Clark, Regal Chemical Corp., Brooklyn, N. Y.; H. R. Sheppard, Connecticut Chemical Corp., Bridgeport, Conn; and Harry E. Peterson, Continental Filling Co., Danville, Ill. were thus concerned with the containers, adaptability of filling equipment for products other than insecticides and the feasability of setting up specifications.

It was generally agreed by this group of associates that the containers last season, were for the most part, quite satisfactory, and no radical changes are foreseen for the immediate future. The possibility of putting out aerosols in various sized containers was pointed out by Mr. Cannella, although it was not predicted that this would be attempted commercially in the near future.

Mr. Peterson expressed the opinion that specifications can and should be set up for the containers and should include: 1. the blowing and cleaning out of the can prior to filling, 2. filling the can to within specified tolerances, 3. coding of cans, 4. water testing or heating of the containers to conform to ICC specifications, and not allowing leaky cans to leave the filling plant, 5. testing of each of the valves prior to packing and shipping.



It was generally agreed that the equipment and method of filling disinfectants and insecticides could be applied just as easily to other products as deodorants, coating compounds, moth preventatives, insect repellents, sun tan lotions, cosmetics, germicides, pharmaceuticals, fire extinguishers, etc. Mr. Sheppard pointed out that to use these same methods and equipment, the filler should be aware of the properties of these different materials and how they may behave under the various conditions to which they may be subjected in this type of manufacturing. Mr. Clark expressed satisfaction with the containers and filler and indicated that a greater effort should be put out by the distributors to "get out and sell the product this coming season."

The questions of consumer acceptance, effectiveness and price of low pressure aerosols, and what should be done to further their distribution, were discussed by H. W. Moburg, Rex Research Corp., Toledo, O.; John H. Mills, Bridgeport Brass Corp., Bridgeport, Conn.; and Jack Hornsteine, American Home Products, New York. Regarding price, the general concensus was that the units are being sold at prices which do not allow a sufficient margin to permit adequate promotion and merchandising programs.

At the outset of the season, several of the established manufacturers had intended to retail the product in the $1.50-$2.00 range, but had to reduce the price 30 percent without changing the formulation, to meet the competitive prices of some new companies in the industry. As a result, some sellers felt there was not sufficient profit margin to develop a good merchandising program.

As pointed out by both Mr. Mills and Mr. Moburg, the public has to be educated in aerosol dispersion. Mrs. Consumer should be informed of the new package and its ease of operation, and persuaded to pay for the convenience and effectiveness of such a product. The product should be attractively packaged and of effective formulation, for "only the quality of the product will bring in repeat business."

In view of the general advantages of automatic dispersion ie., it is convenient, non-spillable, attractively packaged, etc., the application of the aerosol method of dispersion to products other than insecticides is being investigated. The possibilities in this direction were indicated by Anthony Haas, Kilgore Chemicals Inc., Washington, D. C.

Household uses might include deodorants in small containers, while larger sizes could be used in factories, hospitals, hotels, etc. A 10-15 percent optimum content of the active ingredient would be ample in the deodorant application. Sun tan lotion, personal deodorants, and insect repellents might also be thus dispersed, however, the problems involved here include corrosion, possible irritation to the eyes and waste of spray. Further investigation may solve these problems and permit commercial marketing.

On the basis of the research program conducted at the Kettering Institute, Dr. R. A. Fulton, reported on the uses of chlordane and chlordane plus solvents in the aerosol insecticide field.

R. H. Nelson, United States Department of Agriculture Washington, D. C., presented the paper on "Efficiency of Low Pressure Aerosols in Relation to Formulation and Particle Size" which appears elsewhere in this issue.

H. E. PETERSON, Continental Filling Corp., Danville, Ill., as chairman of the Aerosol Committee, reported that a sub-committee had been appointed to design a standard "caution label" to be used on aerosol products, in view of a recent accident involving the mishandling of an aerosol bomb. He also reported that a list of aerosol products was being compiled and will be submitted to the board to determine which products fall under the scope of the N.A.I.D.M.

IN a paper on the "Cement Basing Point Decision," Willard Van Horne, Jr., of the United States Senate Committee on Interstate and Foreign Affairs, discussed pricing policies in the light of this important decision. According to Mr. Van Horne, the f.o.b. mill price is the only pricing system that is legal. Freight charges are no longer permitted to be included in the mill price unless the vehicles and warehouses for transporting and storing the products are owned by the manufacturer. The limits to which this ruling might be extended affect manufacturers in all fields, as was brought out in the discussion which followed the presentation of this paper.

THE need for a program to increase insecticide marketing is well recognized by the industry, and an attempt to arrive at some approach to the problem was made in an open discussion of the "Possibilities for Expanded Sales of Household Sprays" directed by John Powell, John Powell & Co., New York and Friar Thompson, R. J. Prentiss & Co., New York.

A great many new products have entered the field of insecticides, confusing both the consumer and manufactuer, and as Mr. Powell stated, a condition has arisen where the manufacturer, in what appears to be an act of desperation, compounds a shot gun formula by throwing in all known ingredients for an insecticide, which might be beneficial from a sales point of view, but without consideration as to their effectiveness as insecticides. As the public became aware of DDT, it was led to believe that DDT was the miracle insecticide, an answer to all insect problems, and consumers insisted on its presence in all insecticides. Consequently, the manufacturer found it necessary to include DDT in all formulations, increasing the content as high as 10 percent and furthering the propaganda that it was "a cure" for all pest problems.

Mr. Thompson asserted that selling insecticides to the public has been approached from an entirely inadequate angle. Mrs. Housewife has practically been asked to judge the value of an insecticide by reading the formulation of the product on the label, and on the basis of such, decide whether to use it for ants, flies or roaches. The public has not been educated in the use of insecticides or told what they are actually good for.

(*Turn to Page* 143)

Low Pressure Aerosols* ....

Their Efficiency in Relation to Formulation and Particle Size

By **R. H. Nelson, R. A. Fulton, J. H. Fales, A. H. Yeomans**

Agr. Res. Adm., U.S.D.A., Bureau of Entomology and Plant Quarantine

LOW-PRESSURE aerosols for use against household insects were first introduced to the public in the fall of 1947 and came into wide use during 1948. This method of dissemination of insecticidal material is similar to the widely accepted "Freon-12," ** or high-pressure, aerosols. The chief difference has been the reduction in pressure, permitting a low cost container.

For purposes of this paper a low-pressure formulation is one which has a gauge pressure of 40 pounds or less per square inch at 70°F. It consists of a mixture of insecticidal materials, solvents, accessory substances, and liquefied gases. At present all formulations are marketed in two types of light containers, which are equipped with suitable valves for releasing the aerosol. The type and size of containers for low-pressure aerosols has been clearly defined by the Interstate Commerce Commission.

The terms "volatile" and "nonvolatile" have been used in connection with "Freon-12" aerosol formulations and more recently with low-pressure mixtures. The term "nonvolatile" has been associated with the insecticides and necessary solvents, and the term "volatile" with the propellent gas, including "Freon-12" alone and mixtures of "Freon-11" and "Freon-12" and of methylene chloride and "Freon-12." Technically these terms are in error, as only a small proportion of the ingredients when dispersed as an aerosol may be classified as non-volatile. Since the terms "volatile" and nonvolatile" are in general use, they will be used in this paper as indicated above. The formulation of insecticides and solvents and ingredients was important with high-pressure aerosols; it is even more important in the preparation of satisfactory low-pressure aerosols.

The effect of varying the ratio of the volatile to nonvolatile ingredients upon particle size of the aerosol, and upon its insecticidal efficiency and gauge pressure, is an important problem, and the tests here reported were undertaken to obtain information on this question. Fales, McGovran, and Goodhue (1946) studied volatile-nonvolatile ratios in certain high-pressure formulations in tests against house flies. With dibutyl phthalate and DDT as the nonvolatile fraction and "Freon-12" as the volatile portion, they found that the average particle size of the aerosol increased with the nonvolatile content and that the greatest insecticidal efficiency was obtained at a 15-85 ratio of nonvolatile-volatile material.

Methods

THE formulations used in these studies and the filling of the containers were in accordance with the method described by Fulton *et al.* (1947). Representative samples were made up in glass containers (Fulton and Berlin 1947) for observations on physical and chemical properties of the finished product. Gauge pressures were taken at 10° intervals from 70° to 130°F. on all combinations tested. Pressures at 70° and 130°F. are reported here.

In four of the five series of combinations tested, all ingredients used were formulated at Beltsville, with pyrethrum extract containing 20 percent of pyrethrins, aerosol-grade DDT, and other materials as specified

In one series the concentrates containing pyrethrins, sesame oil extractives, and DDT were made up by the manufacturer, and the volatile portion of the formulas added in our laboratory.

In determining the particle size of the aerosols used in this study samples sprayed through a 0.017-inch capillary nozzle were first collected on oleophobic coated microscope slides by electrical precipitation. The size of the particle was then determined according to the method described by Lattar *et al* (1947).

Insecticidal efficiency was determined in tests against house flies, *Musca domestica* L., reared according to standard Peet-Grady procedure. The tests were made in a Peet-Grady chamber using approximately 100 flies per test. The aerosol was introduced into the chamber from a laboratory dispenser (Goodhue, Ballinger, and Fales 1945) with a 0.017-inch capillary nozzle. This procedure resulted in accurate dosage and uniform application for all combinations tested.

Five series of formulations were tested; those of each series containing equal quantities of insecticidal ingredients but with varying nonvolatile-volatile ratios. This variation was obtained by changing the amount of solvent. All the formulations in a given series were tested on one day and then replicated on succeeding days. Comparisons of results between the different formulations in a series are valid, but not between series.

*Before 35th annual meeting N.A.I.D.M., New York, Dec. 6, 1948.

** Trade mark of Kinetic Chemica's, Inc., Wilmington, Del.

"Freon-11" and-"12" in a 50-50 ratio by weight were used as the propellents or volatile portions in all cases.

A dosage of 0.25 gram of aerosol per Peet-Grady chamber, equal to 1.16 grams per 1000 cu. ft., was used for formulas containing 0.2 percent of pyrethrins or above and 0.5 gram per chamber, or 2.32 grams per 1000 cu. ft., for the formulas containing 0.15 percent of pyrethrins. Such dosage permitted critical comparisons, since mortalities of appreciably less than 100 percent were obtained. All mortality data reported here are based on total flies in a given test. Knockdown data were taken five, 10, and 15 minutes after introduction of the aerosol, but only the 15-minute figures are presented here.

Results

THE gauge pressures for each of the five series showed the same trend, that is, decreasing pressure with increasing nonvolatile content, as is shown in tables 1 to 5. Results as to particle size and insecticidal activity differed between series, however, and are discussed separately.

Series I. Pyrethrins-DDT

The formulations used were five combinations containing 0.4 percent of pyrethrins, two percent of DDT and 10, 15, 20, 22, and 25 percent nonvolatile material. The data obtained are presented in table 1 and figure 1. It will be noted that, as the nonvolatile content was increased by the addition of deodorized kerosene, there was an increase in average particle size, a sharp increase in the size of the largest particles between the 15 and 20 percent nonvolatile formulas, and a sharp drop in knock-down and kill between the 20 and 22 percent nonvolatile formulas.

Series II. Pyrethrins, Piperonyl Butoxide, and DDT

As in Series I, five combinations ranging in nonvolatile content from 10 to 25 percent were included in this series. The pyrethrins level in these formulas was 0.15 percent. The data, as shown in table 2 and figure 2, followed the trends as to insecticidal effect noted for Series I, that is, a

TABLE I

Effect on low-pressure aerosols of variation in volatile-nonvolatile ratio. Pyrethrum-DDT formulation. Average of 6 tests of each formulation. Dispenser method in Peet-Grady chamber. Dosage of 1.16 gm./1000 cu. ft., at 80°F.

Material	Concentration Percent	Mean mass diameter Microns	Diameter of largest particles Microns	Gauge Pressure P.S.I. 70°F.	Gauge Pressure P.S.I. 130°F.	Knock-down in 15 min. Percent	Kill in 1 day Percent
Pyrethrum extract 20%	2	9.5	25	37	93	35	71
DDT	2						
"PD 544 C"	6						
"Freon 11 & 12" (50-50)	90						
Pyrethrum extract 20%	2	10.1	25	34	88	31	72
DDT	2						
"PD 544 C"	6						
Deodorized kerosene	5						
"Freon 11 & 12" (50-50)	85						
Pyrethrum extract 20%	2	15.2	40	33	82	29	67
DDT	2						
"PD 544 C"	6						
Deodorized kerosene	10						
"Freon 11 & 12" (50-50)	80						
Pyrethrum extract 20%	2	17.0	40	32	80	20	57
DDT	2						
"PD 544 C"	6						
Deodorized kerosene	12						
"Freon 11 & 12" (50-50)	78						
Pyrethrum extract 20%	2	17.1	40	31	76	19	53
DDT	2						
"PD 544 C"	6						
Deodorized kerosene	15						
"Freon 11 & 12" (50-50)	75						

TABLE II

Effect on low-pressure aerosols of variation in volatile-nonvolatile ratio. Pyrethrum-piperonyl butoxide-DDT formulation. Average of 6 tests of each formulation. Dispenser method in Peet-Grady chamber. Dosage of 2.32 gm./1000 cu. ft., at 80°F.

Material	Concentration Percent	Mean mass diameter Microns	Diameter of largest particles Microns	Gauge Pressure P.S.I. 70°F.	Gauge Pressure P.S.I. 130°F.	Knock-down in 15 min. Percent	Kill in 1 day Percent
Pyrethrum extract 20%	0.75	8.5	30	38	96	62	81
DDT	2.0						
Piperonyl butoxide	1.2						
"Velsicol AR-50"	5.0						
Deodorized kerosene	1.05						
"Freon 11 & 12" (50-50)	90.0						
Pyrethrum extract 20%	0.75	11.0	30	36	89	57	75
DDT	2.0						
Piperonyl butoxide	1.2						
"Velsicol AR-50"	5.0						
Deodorized kerosene	6.05						
"Freon 11 & 12" (50-50)	85.0						
Pyrethrum extract 20%	0.75	12.0	30	35	85	55	69
DDT	2.0						
Piperonyl butoxide	1.2						
"Velsicol AR-50"	5.0						
Deodorized kerosene	11.05						
"Freon 11 & 12" (50-50)	80.0						
Pyrethrum extract 20%	0.75	13.0	35	32	85	39	56
DDT	2.0						
Piperonyl butoxide	1.2						
"Velsicol AR-50"	5.0						
Deodorized kerosene	13.05						
"Freon 11 & 12" (50-50)	78.0						
Pyrethrum extract 20%	0.75	25.0	65	33	81	21	40
DDT	2.0						
Piperonyl butoxide	1.2						
"Velsicol AR-50"	5.0						
Deodorized kerosene	16.05						
"Freon 11 & 12" (50-50)	75.0						

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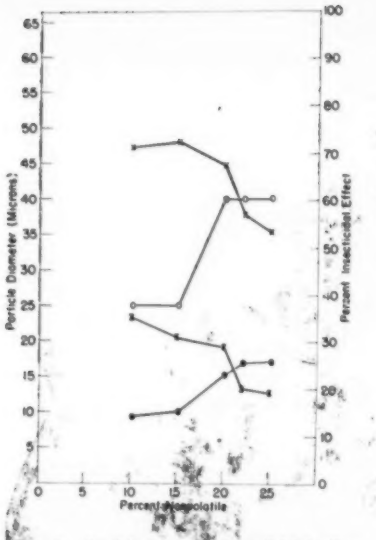

Figure 1.—Particle size and insecticidal effectiveness of pyrethrum-DDT aerosols as associated with changes in the volatile-nonvolatile ratio.
X — X mortality
O — O largest particle
Z — Z knockdown
● —● means mass diameter

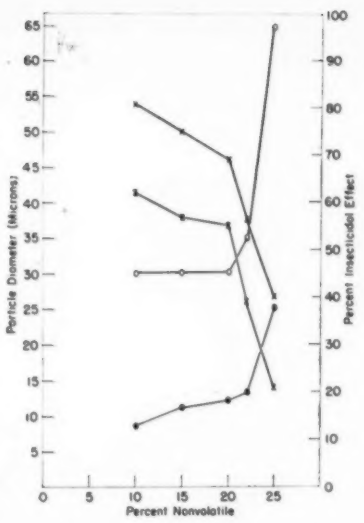

Figure 2.—Particle size and insecticidal effectiveness of pyrethrum, piperonyl butoxide, DDT aerosols as associated with volatile-nonvolatile ratio.
O — O largest particle
X — X mortality
Z — Z knockdown
● —● means mass diameter

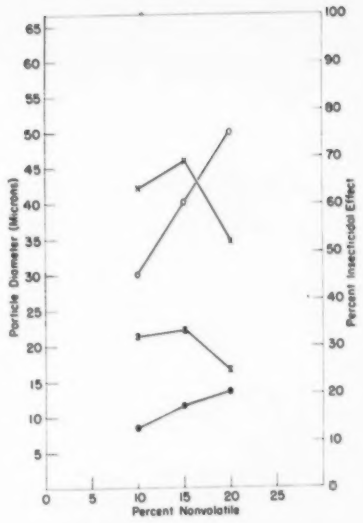

Figure 3.—Particle size and insecticidal effectiveness of pyrethrum-sesame oil extractives-DDT aerosols as associated with changes in the volatile-nonvolatile ratio.
O — O largest particle
X — X mortality
Z — Z knockdown
● —● means mass diameter

sharp decrease at nonvolatile ratios above 20 percent. The sharp increase in size of the largest particles, however, occurs between the 20 and 25 percent nonvolatile combinations.

Series III. Pyrethrins, Sesame Oil Extractives, and DDT

Only three combinations, 10, 15 and 20 percent nonvolatile, were included in this series. The manufacturers' concentrates were used, and the alkylated naphthalene solvent as well as the deodorized kerosene increased with the nonvolatile content. The results are shown in table 3 and figure 3. With these combinations there was a steady rise in particle size with increasing nonvolatile ratios. The break in insecticidal efficiency occurred between the 15 and 20 percent nonvolatile formulas.

Series IV. Pyrethrins, N-Propyl Isome, and DDT

The same three nonvolatile ratios were tried here as in Series III, only the deodorized kerosene content being varied. The test results are shown in table 4 and figure 4. In these combinations the break in largest particle size occurred between the 10 and 15 percent nonvolatile samples. There was no sharp change, however, in the insecticidal efficiency of the samples tested. Efficiency of these ingredients in formulas of more than 20 percent nonvolatile content has not been determined.

Series V. Pyrethrins, "Van Dyk 264," and DDT

As in Series III and IV, three nonvolatile ratios were included here, and the results are shown in table 5 and figure 5. Particle size and knockdown data follow trends similar to those noted for the combinations containing sesame oil extractives. There was, however, no sharp falling off in mortality results with the formulas tested. Formulations of greater nonvolatile content were not tested.

TABLE III

Effect on low-pressure aerosols of variation in volatile-nonvolatile ratio. Pyrethrum-sesame oil extractives-DDT formulations. Average of 6 tests of each formulation. Dispenser method in Peet-Grady Chamber. Dosage of 1.16 gm./1000 cu. ft., at 80°F.

Material[1]	Concentration Percent	Mean mass diameter Microns	Diameter of largest particles Microns	Gauge Pressure P.S.I. 70°F.	Gauge Pressure P.S.I. 130°F.	Knockdown in 15 min. Percent	Kill in 1 day Percent
Pyrethrins	0.2	8.5	30	37	94	32	63
Sesame oil extractives	1.0						
DDT	2.0						
"PD 544 C"	6.8						
"Freon 11 & 12" (50-50)	90.0						
Pyrethrins	0.2	11.5	40	36	89	33	69
Sesame oil extractives	1.0						
DDT	2.0						
"PD 544 C"	5.2						
Deodorized kerosene	6.6						
"Freon 11 & 12" (50-50)	85.0						
Pyrethrins	0.2	13.5	50	33	84	25	52
Sesame oil extractives	1.0						
DDT	2.0						
"PD 544 C"	9.0						
"Freon 11 & 12" (50-50)	80.0						
Deodorized kerosene	7.8						

[1] Manufacturers' concentrate used.

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Discussion and Conclusions

1. In all combinations included in this study, considering gauge pressure, particle size, and insecticidal activity, the best formulations appear to be those containing 10 or 15 percent of nonvolatile constituents.

2. A large proportion of the formulas approved and manufactured during 1948 were 15-85 ratio combinations. Certain formulations containing pyrethrins, piperonyl butoxide, and DDT have been approved at a 20-80 ratio. The data presented here show no sharp changes in particle size or insecticidal effect for formulas of 20 percent or less of nonvolatile material containing these insecticidal ingredients. Even with these ingredients, a 20-80 ratio is regarded as marginal.

3. The insecticidal efficiency of low-pressure aerosols in general shows negative correlation with nonvolatile content and particle size and positive correlation with gauge pressure. These relationships are not consistently straight-line functions, and other factors are not understood. Nevertheless, the data given in this paper indicate the desirability of formulating most combinations at approximately a 15-85 ratio, thus allowing a performance

(*Turn to Page* 166)

Figure 4.—Particle size and insecticidal effectiveness of pyrethrum-n-Propyl Isome-DDT aerosols as associated with changes in the volatile-nonvolatile ratio.

O — O largest particle ● — ● mean mass diameter
X — X mortality Z — Z knockdown

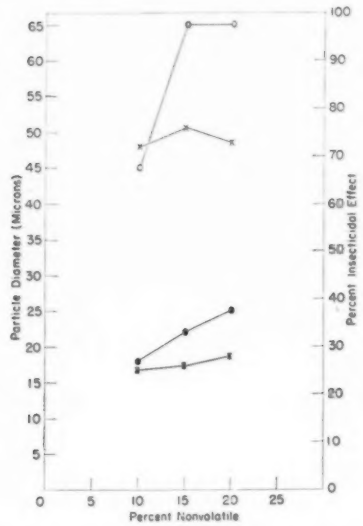

Figure 5.—Particle size and insecticidal effectiveness of pyrethrum-Van Dyk 264, DDT aerosols as associated with changes in the volatile-nonvolatile ratio.

O — O largest particle ● — ● mean mass diameter
X — X mortality Z — Z knockdown

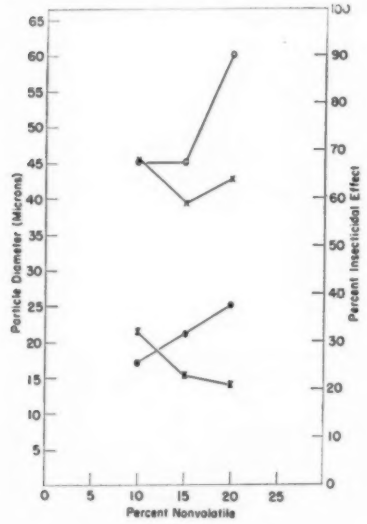

TABLE IV

Effect on low-pressure aerosols of variation in volatile-nonvolatile ratio. Pyrethrum-n-Propyl Isome-DDT formulations. Average of 6 tests of each formulation. Dispenser method in Peet-Grady chamber. Dosage of 1.16 gm./1000 cu. ft., at 80°F.

Material	Concentration Percent	Mean mass diameter Microns	Diameter of largest particles Microns	Gauge Pressure P.S.I. 70°F.	Gauge Pressure P.S.I. 130°F.	Knockdown in 15 min. Percent	Kill in 1 day Percent
Pyrethrum extract 20%	1	18	45	38	94	25	72
n-Propyl Isome	2						
DDT	2						
"PD 544 C"	5						
"Freon 11 & 12" (50-50)	90						
Pyrethrum extract 20%	1	22	65	37	91	26	76
n-Propyl Isome	2						
DDT	2						
"PD 544 C"	5						
Deodorized kerosene	5						
"Freon 11 & 12" (50-50)	85						
Pyrethrum extract 20%	1	25	65	34	85	28	73
n-Propyl Isome	2						
DDT	2						
"PD 544 C"	5						
Deodorized kerosene	10						
"Freon 11 & 12" (50-50)	80						

TABLE V

Effect on low-pressure aerosols of variation in volatile-nonvolatile ratio. Pyrethrum-Van Dyk 264-DDT formulations. Average of 6 tests of each formulation. Dispenser method in Peet-Grady chamber. Dosage of 1.16 gm./1000 cu. ft., at 80°F.

Material	Concentration Percent	Mean mass diameter Microns	Diameter of largest particles Microns	Gauge Pressure P.S.I. 70°F.	Gauge Pressure P.S.I. 130°F.	Knockdown in 15 min. Percent	Kill in 1 day Percent
Pyrethrum extract 20%	1	17	45	36	95	32	68
"Van Dyk 264"	2						
DDT	2						
"PD 544 C"	5						
"Freon 11 & 12" (50-50)	90						
Pyrethrum extract 20%	1	21	45	35	89	23	59
"Van Dyk 264"	2						
DDT	2						
"PD 544 C"	5						
Deodorized kerosene	5						
"Freon 11 & 12" (50-50)	85						
Pyrethrum extract 20%	1	25	60	34	82	21	64
"Van Dyk 264"	2						
DDT	2						
"PD 544 C"	5						
Deodorized kerosene	10						
"Freon 11 & 12" (50-50)	80						

A Machine for Evalnation of

Dirt Retention by Floor Waxes*

By Daniel Schoenholz and Cyril S. Kimball

Foster D. Snell, Inc.

TACKINESS of floor waxes is a property the importance of which has long been recognized by the industry. In practice, the presence of excessive tackiness in a wax is manifested by the relatively rapid soiling of the waxed surface. Several methods have been suggested for the evaluation of tackiness. These attempt to measure the rather low order of tackiness of wax films in terms of the force necessary to separate a surface previously pressed against a waxed panel under specified conditions.

This paper describes a method and apparatus for directly determining the relative resistance of waxes to soiling without regard to the complex of physical properties of the film which may be responsible for the property. Accordingly we prefer to state that our method and apparatus give a significant measure of the tendency of waxes to retain soil particles impressed upon them in walking, rather than a measure of the tack of the film, which is probably only one of several film characteristics involved.

Apparatus:

THE apparatus used consists in essence of a circular bed to which are securely fastened radially cut pieces of linoleum. At opposite ends of a centrally pivoted cross arm are suspended solid steel rollers, four inches in diameter, 5½ inches in length and weighing 11¾ pounds each. The pressure exerted by each roller is approximately 10 psi. The rollers are so mounted as to permit free vertical motion in order to maintain substantially constant pressure despite small inequalities in the levelness of the test panels.

The yokes holding the rollers are fastened to the cross arm by pivots and can be set at various angles to the circular path of motion of the cross arm. The cross arm is driven in a horizontal circular path by a motor. By adjusting the angle of the roller to the cross arm, two types of motion are imparted to the roller, viz., a combination of rolling and dragging in the circular bed which simulates the combination of pressure and scuffing action encountered in walking.

Each roller is covered with a piece of carpeting which assists in maintaining even distribution of the soil used. While higher speeds of rotation are obtainable with the belt and pulley drive used, a speed of 12 RPM

Below: Machine described in accompanying article.

*Before 35th annual meeting Natl. Assn. Insecticide & Disinfectant Mfgrs., New York, Dec. 7, 1948.

has been found sufficient for the application described herein. Since two rollers are used, each panel is acted upon 24 times per minute.

Test Procedure:

PANELS cut from white linoleum are used. The panels are cut to the dimensions of a template such that 11 of them will make a flush fit when fastened to the bed of the track under heavy steel rings provided for the purpose.

The panels are immersed in the wax or finish to be tested for ten seconds, permitted to drain and dry in a vertical position for four hours, then again dipped and hung for drying for the balance of 24 hours. The entire application and test procedure is conducted at 75°F. and 50 percent relative humidity in a conditioned room.

The panels are then securely fastened to the bed of the machine. One hundred grams of an artificial soil consisting of ordinary coke ground to pass a 30 mesh screen is then distributed around the bed of the machine on the linoleum surface and the rollers are set in motion. After five minutes, or 120 contacts of each panel with a roller, the machine is stopped. The panels are removed from the bed and all loosely adhering soil is brushed and wiped from the panel surfaces.

The degree of darkening of the panel surfaces due to adherence of soil particles indicates the ease of soiling of the waxes under test and is determined by measuring the light reflectance of the soiled surface by means of a reflectometer.

Experimental Results:

BY way of illustration of the type of information to be gained through the use of the apparatus and procedure described, we show a tabulation of the results obtained for various coatings.

Individual Waxes: For the purpose of determining the soil-retention characteristics of a number of typical waxes without admixture with other materials, dispersions in toluene containing 10 percent by weight of each of the waxes were prepared and coated on linoleum. Two coats were applied. The film was machine-buffed after each coat and the panels were permitted to dry 48 hours before testing. The longer drying period was thought to be sufficient to evaporate all traces of solvent in the film.

TABLE IV
Reflectance Readings
Soil Retention, Wax Emulsions

	High Titer Soap			*Low Titer Soap*		
	1	2	Mean	1	2	Mean
Carnauba	17	18	17.5	14	14	14
Carnauba + Candelilla	12	14	13	11	12	11.5
Candelilla	10	10	10	7	9	8
Carnauba + Shellac	20	20	20	18	19	18.5
Carnauba + "Amberol"	19	21	20	16	17	16.5
Carnauba + Candelilla + "Amberol"	18	16	17	16	16	16
Candelilla + Shellac	12	—	12	11	13	12

Shellac Type Resins: Shellac and a shellac substitute, "Amberol 750," * were tested by application to the panels of 12 percent solutions of the resins cut with ammonia.

Wax Emulsions: Two emulsification formulas were used, one based upon the use of "Ivory" ** soap-borax emulsifier, the other based on the use of monoethylamine oleate-caustic soda emulsifier. These were intended to compare the relative tackifying effect of high titer soap and low titer soap emulsifiers:

The emulsion formulae used follow:

"IVORY" SOAP

9.88%	Wax
1.50%	"Ivory" Soap
.90%	Borax
87.72%	Water
100.00%	

OLEATE SOAP

10.30%	Wax
1.50%	Oleic acid
.06%	Caustic soda
0.59%	Monoethylamine 70%
87.55%	Water
100.00%	

The waxes used in each formula to prepare individual emulsions were:

1. Carnauba Wax #3 North Country Refined
2. 50% Carnauba + 50% Candelilla
3. Candelilla

In addition mixtures with 12 percent shellac and "Amberol 750" solutions were prepared containing 20 percent of resin solution and 80 percent of wax emulsion.

TABLE I
Reflectance Readings

Linoleum, uncoated, before test	48
Linoleum, uncoated, after test	15

TABLE II
Reflectance Readings
Soil Retention, Ammonia Cut Resins

12% Shellac	25
12% "Amberol 750"	21

TABLE III
Reflectance Readings
Soil Retention,
Waxes from Toluene Dispersions

	1	2	Mean
Carnauba	12	13	12.5
Candelilla	11	10	10.5
Oxidized wax	11	11	11
Paraffin 133-135	9	8	8.5

TABLE V
Reflectance Readings
Soil Retention, Wax Emulsions,
Commercial Samples

Code	
A	27
B	21
C	10
D	10
E	13
F	10
G	8
H	17
I	15
J	14

Discussions:

THE rather high soil retention shown by the linoleum itself (Table I) is indicative of the fact that tackiness is not the only factor in soil retention but that other factors, for example, the porosity of the surface and hardness, are also important.

Table II indicates the relative low soil retention of shellac and "Amberol 750" and indicates the relative superiority of a pure shellac film to a pure "Amberol" film.

The soil retention values of individual waxes from toluene dispersions (Table III) are considered somewhat dubious although they are very

(*Turn to Page* 137)

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A QUATERNARY INACTIVATOR

By G. R. Goetchius*
Research Laboratories,
Rohm & Haas Company

THE rapid development in recent years of the use of quaternary ammonium germicides has emphasized the need for a good inactivator for these compounds. It is characteristic of our basic research that soon after the introduction of new types of antibacterial agents, reports appear on methods for counteracting their activities. Outstanding examples of this trend are the reversal of the antibacterial action of chlorine by sodium thiosulfate, of phenol by ferric chloride, of sulfonamides by p-aminobenzoic acid, and of penicillin by penicillinase. In each instance the inactivator has played an important role in determining the mechanism of action of the antibacterial agent.

The inactivation of quaternary ammonium germicides has been accomplished to a greater or less degree by several agents. Almost simultaneously with their introduction Domagk (1) noted the neutralizing action of soap. This neutralization was brought about by the formation of an insoluble precipitate from the addition of soap (anionic) to a quaternary (cationic). Use has been made of soap as an inactivator of quaternaries by James (2, 3) to institute a test procedure which eliminates residual bacteriostatic effects while measuring bactericidal efficiency of quaternaries. Some degree of neutralization has also been attained by the action of anionic synthetic detergents against the cationic quaternaries (Valko and DuBois 4). Interestingly enough, DuBois and Dibblee (5) found that although prior treatment of bacteria by anionic compounds delayed the action of cationic germicides, it did not prevent eventual bactericidal action. Once the test organisms have been exposed to bactericidal concentrations of quaternary ammonium compounds, anionic detergents cannot reverse the killing process (Klein and Kardon 6).

Besides the ionic reactions noted above, inactivation of quaternary ammonium germicides has been brought about by certain phospholipids (Baker, Harrison and Miller 7). Use was made of phospholipid inactivation by Quisno, Gibby and Foter (8) who originated a medium containing lecithin and "Tween 80" ** for use in studies on cationic germicides. A similar "T.A.T. medium" was later announced by Armbruster and Ridenour (9).

Properties of Inactivator

THE above inactivators have undoubtedly served a useful purpose in laboratory experiments involving studies on the bactericidal effectiveness of the various quarternaries. There is another field, however, in which a suitable inactivator for this class of germicides is sorely needed. The public health inspector has nothing comparable to the thiosulfate inactivator for chlorine germicides when swab tests are made at restaurants, taverns, etc., that have used quaternaries for the sanitation of dishes, glassware and utensils. The transport of swab samples back to the laboratory without fear of residual bactericidal action can be assured only when a good inactivator is present in the buffer solution in which the swab is immersed. The inactivator chosen should have the following attributes: (1) it should be positive in action in small amounts; (2) it must not in itself be germicidal; (3) it should be water-soluble; (4) it should withstand autoclaving temperatures; (5) it should not deteriorate upon standing for reasonable lengths of time; (6) the material should be inexpensive and readily obtainable; (7) it should not posses detergent properties or "soapiness." This last requirement was added in the interest of those desiring to make studies on the relative efficiencies between chlorine products and quaternary ammonium compounds as sanitizing agents. Results are not comparable if the chlorine has been inactivated by sodium thiosulfate and the quaternary by soap or a detergent. The very nature of these latter agents causes a greater pickup of organisms on the swab because of their ability to wet the surface contacted. This markedly increased "wettability" also causes a greater release of organisms from the cotton fibers of the swab, and should thus be avoided where comparative studies are desired against non-detergent inactivators.

The only inactivator so far described which begins to meet the above criteria is suramin sodium, a sulfonic acid derivative recently described by Lawrence (10). The main objections to this reagent are its comparatively high cost combined with the rather large amounts required for inactivation of certain quaternaries. While conducting investigations upon various sulfonic acid derivatives, it was found that "Tamol N," † the sodium salt of a condensed aryl sulfonic acid, would meet all the above requirements for a quaternary inactivator.

Experimental Methods

GRADUATED amounts of "Tamol N" were mixed with the generally accepted use-dilution (200 p.p.m.) of each of five varying types of quaternary ammonium bactericides, followed by inoculation of a test organism and plating after various ex-

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TABLE I

Survival of E. Typhosa After Exposure To Quaternaries Plus "Tamol"

Quaternary 1:5000	Time	TAMOL 1:4000	1:5000	1:6000	1:7000	No Quat.	No "Tamol"
Di-isobutyl phenoxy ethoxy ethyl dimethylbenzyl ammonium chloride	2 min.	4500	4400	240	0	4000	0
	4 "	3500	4300	530	0	4100	0
	6 "	2600	4700	290	0	4200	0
Alkyl dimethylbenzyl ammonium chloride	2 min.	5800	3500	20	0	3500	0
	4 "	5000	3800	40	0	4000	0
	6 "	5600	3500	30	0	4400	0
N-(Acylcolaminoformylmethyl) pyridinium chloride	2 min.	3100	2200	320	0	4000	0
	4 "	4000	2700	290	0	4100	0
	6 "	3200	2800	230	0	4200	0
Cetylpridinium chloride	2 min.	3800	4700	0	0	3000	0
	4 "	3100	3800	0	0	3300	0
	6 "	3200	3400	0	0	3000	0
9-Octadecenyl dimethyl ethyl ammonium bromide	2 min.	3100	780	40	0	4000	0
	4 "	3600	410	5	0	4100	0
	6 "	3400	290	50	0	4200	0

posure intervals. In detail, nine ml. of a 1:4500 solution of the quaternary was pipetted into each of a series of sterile test tubes. This was followed by the addition of one ml. of a "Tamol N" solution 10 times as concentrated as desired for testing. This resulted in a mixture of 1:5000 quaternary in each instance with the desired dilution of "Tamol N." 0.1 ml. of a 1:1000 dilution of a 24-hour culture of the test organism was added, and after exposure periods of two, four and six minutes, one ml. and 0.1 ml. quantities were plated in nutrient agar. Controls included a tube containing no quaternary and one with no "Tamol N."

Results obtained using *Eberthella typhosa* as test organism are presented in Table I. It may readily be observed that there is little variation among the five quaternaries in regard to their response to the presence of "Tamol N." A 1:5000 dilution of quaternary is completely inactivated by approximately the same amount of "Tamol N."

When *Staphylococcus aureus* is employed as test organism, the results are quite different as illustrated in Table II. The quaternaries in general are highly bacteriostatic to the Gram positive cocci, and even a very minute amount of the active material will bring about inhibition of growth. The tests employing S. *aureus* are, therefore, a truer measure of the amount of "Tamol N" required for complete inactivation. With the Gram negative

TABLE II

Survival of S. Aureus After Exposure To Quaternaries Plus "Tamol"

Quaternary 1:5000	Time	TAMOL 1:750	1:1000	1:2500	1:5000	No Quat.	No "Tamol"
Di-isobutyl phenoxy ethoxy ethyl dimethylbenzyl ammonium chloride	2 min.	2200	1700	1700	650	2400	0
	4 "	2000	1400	1700	510	2900	0
	6 "	1900	1200	1500	270	2500	0
		1:500	1:750	1:1000	1:2500		
Alkyl dimethylbenzyl ammonium chloride	2 min.	2100	1400	760	810	2300	0
	4 "	2000	1000	1600	530	2100	0
	6 "	2000	1900	570	670	2500	0
		1:1000	1:2500	1:5000	1:10,000		
N-(Acylcolaminoformylmethyl) pyridinium chloride	2 min.	3200	2800	2500	2400	2500	190
	4 "	3300	3200	2400	1900	2800	0
	6 "	3300	3300	2000	1800	2200	0
		1:50	1:75	1:100	1:500		
Cetylpridinium chloride	2 min.	2600	1700	1800	0	2600	0
	4 "	2700	1900	2000	0	2800	0
	6 "	2700	1800	1300	0	2700	0
		1:100	1:250	1:500	1:1000		
9-Octadecenyl dimethyl ethyl ammonium bromide	2 min.	2900	2100	510	45	3000	0
	4 "	3200	2300	550	220	2700	0
	6 "	3500	2200	430	20	2900	0

bacilli, as typified in the above experiments by *E. typhosa*, minute amounts of uninactivated quaternary would not inhibit growth of the organism. It is apparent from Table II that different amounts of "Tamol N" are required for the complete inactivation of the five different quaternaries. Only N-(acylcolaminoformylmethyl) pyridinium chloride is completely inactivated by an equal amount of "Tamol N." Di-isobutyl phenoxy ethoxy ethyl dimethylbenzyl ammonium chloride requires about 6-2/3 as much, alkyl dimethylbenzyl ammonium chloride about 10 times as much, 9-octadecenyl dimethyl ethyl ammonium bromide 20 times as much, and cetylpyridinium chloride 50 times as much.

Antibacterial action of "Tamol N"—It is obvious that any compound used as an inactivating agent must not in itself posses germicidal properties. Diluted, washed, 24-hour agar slant cultures of *E. typhosa* and *S. aureus* were allowed to stand in contact with varying concentrations of "Tamol N" in Butterfield's buffer solution at room temperature for one hour. The mixtures were subsequently plated in nutrient agar and counts made of the survival numbers. Results of these experiments are given in Table III. These figures show that two percent "Tamol N" is harmless to *E. typhosa*, while *S. aureus* is not influenced by concentrations up to about 15 percent. At the two percent level, "Tamol N" was also found to have no lethal effect upon such other organisms as *Streptococcus pyogenes* (C 203), *Streptococcus fecalis, Neisseria catarrhalis, Brucella suis, Proteus vulgaris*, or *Pseudomonas aeruginosa*.

TABLE III

Effect on Bacteria of a One Hour Exposure to "Tamol"

% "Tamol"	Survival E. typhosa	S. aureus
20	0	80
15	0	400
10	0	660
5	380	630
2	1400	770
1	1500	750
0	1600	580

Summary

WE have herewith described a new inactivator for quaternary ammonium germicides which appears to hold advantages not only for laboratory studies on the antibacterial action of these germicides, but for public health inspectors and the like, who are faced with the problem of transporting samples to the laboratory without fear of residual bactericidal action. In proposing the use of "Tamol N" (the sodium salt of a condensed aryl sulfonic acid), we feel that it adequately meets the standards mentioned in the introduction in the following manner:

1. It is positive and fast in action.
2. It is not bactericidal in concentrations up to two percent against a variety of organisms.
3. It is highly water-soluble.
4. It can withstand normal autoclaving.
5. It will not deteriorate on standing in solution up to a period of six months.
6. It is inexpensive.
7. It does not possess detergent properties.

Acknowledgement

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Sanitation Clinic

A symposium on "Recent Research in Milk and Food Sanitation" is to be held in the auditorium of the U. S. Department of Commerce, Washington, D. C., Jan. 26-27. The meeting is being held under the auspices of the Sanitation Study Section, Division of Research Grants and Fellowships, National Institutes of Health, U. S. Public Health Service. Two 10-minute discussions dealing with insecticides are to take place at the session on the first afternoon, which is to be presided over by Dr. W. L. Mallmann, professor of Bacteriology and Public Health at Michigan State University. Dr. L. A. Moore, assistant head of the division of Physiology and Nutrition, Bureau of Dairy Industry, Beltsville, Md., and R. H. Carter and Dr. F. W. Poos of the Bureau of Entomology and Plant Quarantine will discuss "Insecticide Studies with Dairy Cattle." A discussion "Insecticides Retained in Meat Animals" will be presented by R. H. Carter of the Bureau of Entomology and Plant Quarantine, Beltsville, Md. The morning of the following day Dr. F. C. Bishopp, assistant chief in charge of research, Bureau of Entomology and Plant Quarantine, U.S.D.A., Washington, D. C. is scheduled to talk on "Studies of Contamination of Vegetable and Fruit Products by Insecticides."

Among the papers to be presented at the afternoon session of the second day, presided over by Dr. Bishopp, are: "Studies of Quaternaries as Bactericides" by Dr. George R. Weber, bacteriologist, milk and food laboratory, Environmental Health Center, U.S.P.H.S., Cincinnati; Studies of High Temperature Mechanical Dishwashing" by Dr. Mallmann and "Toxicity of Small Quantities of Insecticide Residue in Foods" by Dr. O. Garth, pharmacologist, Food and Drug Administration, Washington, D. C.

AHA Drops Testing Plans

The American Hotel Association, following a meeting of the organization's board, has just announced that it has decided to abandon its plan to charge manufacturers for testing of various materials—including floor wax products—as was originally planned.

Recently manufacturers of floor wax products received a letter signed by J. S. Fassett, director of the AHA service department, stating that the manufacturer's product was selected for testing. A fee of $175.00 for testing was asked of manufacturers, with additional products being submitted for $150.00 each. Later this fee was cut to $100 for the first product and $75 for each subsequent product tested.

Action by the National Association of Insecticide and Disinfectant Manufacturers, the National Sanitary Supply Association and the wax division of the New York Paint, Varnish & Lacquer Association in passing resolutions condemning the plan of the Hotel Association was held to be responsible for the abandoning of the plan by AHA. Such tests, by York Research Laboratories, of Stamford, Conn., will now be financed by the American Hotel Association.

Western NSSA Meetings

Large turn-outs were recorded for the two regional meetings of the National Sanitary Supply Association held recently in San Francisco under the sponsorship of the western regional group and in New Orleans, where the first conference of this newly formed section was arranged by the southwestern region of NSSA. The San Francisco meeting, the third annual gathering of the western region, had as its program chairman, William White of Wilwite Associates, Oakland Augustus Mierson of Mierson Products Co., NSSA vice-president for the west, was general chairman for the meeting. One of the highlights of the program, which was about evenly divided between management and sales, was a panel discussion on "How to Operate a Profitable Sanitary Supply Business."

The Southwest regional conference, sponsored by Joseph Lassen, American Chemical Co., and NSSA vice-president from that region, dealt in the main with sanitary products and their application. Assisting Mr. Lassen on committee details were Walter Davis, Jr., Malter Supply Co., and Henry J. Miller, Monarch Chemical Co.

Albert Epstein Dies

Albert K. Epstein, founder and president of Emulsol Corp., Chicago, died in Israel, Dec. 22.

SOAP EXPORTS

(*From Page* 43)

those of 10 years ago.

During the immediate postwar period, the supply sent to Italy, Poland, Russia and Austria amounted to 25 per cent of total exports. These nations were not markets for domestic products in the past, nor are they now. An artificial situation was created by temporary needs politically expedient to supply. The Union of South Africa and Haiti are of another category. Long importers of American soaps, it appears that the demand has been increased and the gain promises to be permanent.

The Netherlands, the Indies and India have been relatively large buyers for many years of quality products such as toilet and fancy soaps. The war completely disrupted this traffic and recovery has since been slow. The lack of dollars and the tendency to establish new industry, especially in India, suggests that these markets are permanently lost.

Foreign sale of domestic soap products continues in a state of flux where losses of markets in some areas are in great part compensated by gains in others. The net result is likely to be the same sales ratio which existed before the war and the pattern will probably be as indefinite as before.

WAX TESTING

(*From Page* 129)

likely in the correct general order. Probably the chief error involved here is failure to eliminate all solvent due to the solvent-retaining properties of the waxes. It is believed that retained solvent would tend to soften and tackify the film, thereby giving erroneously low reflectance readings, particularly in the case of carnauba which has extremely good solvent-retention power.

The good precision of the method is shown by the repeat tests of Table IV. With reasonable care agreement between two tests within two reflectance units can readily be obtained.

The test results here support general field experience surprisingly well. Carnauba is shown to exhibit less dirt retention than Candelilla and the dirt retention for a 1:1 mixture of the two waxes is almost the exact mean of the dirt retention of the waxes alone. The improvement derived by adding shellac or a shellac-like material appears clearly. In each case a reduction in soil retention is noted for waxes containing such a resin as compared with the comparable emulsion not containing the resin. The influence exterted by the emulsifier used is shown by comparison of the results obtained with the "Ivory" soap and oleate soap formulae. The lower titer oleate soap shows a marked increase in soil retention over the "Ivory" soap formulae. Table V shows values obtained for ten commercial wax samples and indicates the range of values for commercial preparations.

Conclusion:

THE testing instrument and method described herein are believed to provide an excellent and practical answer to the problem of measuring soiling tendencies, and therefore the resistance to soiling of floor waxes and finishes. A quantitative measure of these properties is provided which correlates well with field experience.

The usefulness of the instrument as a tool for comparison and control testing, and as a research medium for determining the separate and combined effects of the different components of the polish film are clear. The quantitative nature of the results and the good precision obtained suggests the possibility of incorporation of the method in wax specifications.

MANAGEMENT

(*From Page* 42)

sponsibilities, he will have had a chance, with management interest and support, to do these things:

— to consolidate his position and his accomplishments at each step;

— to fill each job long enough to become familiar with its viewpoint and its place in the general scheme;

— to demonstrate that he can handle each job even when, because of the relative acceleration of his program, he cannot be permitted to stay on it long enough to master every detail;

— and thus to leave a record of real accomplishments behind him.

* * *

Thus far, I have talked about the problem of the man; but before I close, I should like to say a few words about what is a most important subject in itself: the attitude and philosophy of the management toward the future strength of the organization's top operating group.

It is part of the philosophy of my company to prepare men so that they arrive at the top level of management able to work for twenty or twenty-five years more. For one thing, there is the matter of the sheer physical and mental demands on management these days. A man with fewer years experience may have a little more resilience during the period until his skill and experience are fully developed. Further, the very lack of the tradition in a younger man may have some advantage in meeting changing conditions. And finally, of course, there is the aspect of having the administration of a company or a major department of it run, say, twenty years between changes, with the advantages of continuity of thought and action. It happens that my own company has practiced this "succession by generations," and believes in it. It is 111 years old, and has had only four heads of the business.

If we accept for the moment that it may be a good thing to develop men for top management in the fifteen or twenty years before they reach forty, and if much of that development must come from their superiors, then that must mean a concentration of effort on the best candidates. Starting with as broad a field as desired, some system of selection or elimination will leave a group on which concentrated effort may be spent to the best advantage. Failure to earmark these men—after they are recognized—leaving their development and program of advancement to chance or expediency, in my judgment, would be extremely short-sighted.

IN closing, may I summarize some of the high spots of what I have discussed.

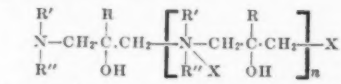
1. The changes which come about in recent years and face us today place no greater responsibility upon management than to select, train and develop more good men for future higher management.
2. A program for the purpose must take into consideration the guidance of a candidate's point of view toward his present job and future opportunities, toward business, and toward management's place in it.
3. A candidate's development steps should be intelligently planned and guided at a maximum speed consistent with his talents and abilities.
4. A program for candidates for management can be most effective only when it ties into an overall "calendar by years" program for the organization as a whole.

PATENTS

(*From Page* 85)

each phenol nucleus in said condensate through the phenolic oxygen atom thereof, wherein R in both occurrences is the same saturated alkylene group containing two to four carbon atoms, R" is a saturated hydrocarbon radical, containing one to seven carbon atoms, from the class consisting of alkylene and arylene radicals, y has a value of 0 to 20, M is a metal from the class consisting of alkali and alkaline earth metals, and z has a value of 1 to 2.

No. 2,454,547, Polymeric Quaternary Ammonium Salts, patented November 23, 1948 by Louis H. Bock, Huntingdon Valley, Pa., and Alva L. Houk, San Luis Obispo, Calif., assignors to Rohm & Haas Co., Philadelphia, Pa., a corporation of Delaware. A surface-active quaternary ammonium salt is covered having the general formula



in which n is an integer which has a value of three to eleven, R in both occurrences is the same member of the class consisting of hydrogen and methyl groups, R' in both occurrences is the same alkyl group from the class consisting of methyl and ethyl groups, R" contains eight to eighteen carbon atoms and in both occurrences is the same hydrocarbon group from the class consisting of alkyl groups and aralkyl groups, and X is a member of the group consisting of chlorine and bromine.

No. 2,454,568, Thioglycol Esters, patented November 23, 1948 by Maxwell A. Pollack, Denville, N. J., assignor to E. F. Drew & Co., Inc., New York, N. Y., a corporation of Delaware. An ester of a thioglycol is patented having at least one sulphhydryl group with a higher fatty acid having from 12 to 18 carbon atoms.

No. 2,455,050, Nondusting Detergent Compositions, patented November 30, 1948 by Sidney Eisenberger, New York, and Samuel Machlis, New Rochelle, N. Y., assignors to O. D. Chemical Corp., New York, N. Y., a corporation of New York. A non-dusting detergent composition is covered consisting essentially of from about 10% to 50% of a complex mixture of alkyl naphthalene sulfonates in which the alkyl groups contain from 3 to 6 carbon atoms, about 10% to 50% of tetrasodium pyrophosphate and from about 15% to 40% of at least one alkali-metal carbonate from the class consisting of soda ash and sodium bicarbonate, together with a small fraction of 1% of diethylene glycol stearate intimately distributed therein.

No. 2,455,238, Manufacture of Hydrogen Peroxide, patented November 30, 1948 by Lynn H. Dawsey and Robert R. Umhoefer, Kenmore, and Carl R. Muehlhausser, Tonawanda, N. Y., assignors to Buffalo Electro-Chemical Co., Inc., Tonawanda, N. Y. In the production of hydrogen peroxide by first hydrogenating an alkylated anthraquinone and then oxidizing the resulting hydroquinones with the formation of hydrogen peroxide and regeneration of the quinones, the patent covers the improvement which comprises employing dibutyl sebacate as a solvent in which to carry out the reactions.

TECHNICAL BRIEFS

From Current Literature in the Sanitary Products Field

Mold Inhibitors

Molds and fungi, including those responsible for athlete's foot, may be inhibited or prevented from growing, by the mono- and di-esters of 1,2-propylene glycol or dipropylene glycol with the straight-chain, saturated monocarboxylic acids of two to 10 carbon atoms. Concentrations as low as one per cent or less are effective. S. W. Arenson, U. S. Patent No. 2,446,506.

Wax Substitute

A high-grade substitute for waxes is prepared from technical lanolin. The free fatty acids of lanolin are transformed into aluminum, calcium, or alkali salts. The sediment obtained during coagulation and filtration of lanolin-containing waste water, such as that from wool washing, can also be utilized for production of the waxy material. P. A. Trubitsin and L. G. Leites, U S.S.R. Patent No. 67,447; through *Chem. Abs.*

Naphthalene Insecticide

A dust effective as an insecticide contains two per cent of magnesium carbonate, eight of fullers' earth, and 90 per cent of crude naphthalene. E. G. Guy, to Koppers Co., Inc., U. S. Patent No. 2,445,776.

Fungistats, Fungicides

Ten commonly used antifungal compounds were found to possess only relatively weak fungistatic and fungicidal properties. In a search for more potent therapeutic substances, 55 chemicals belonging to the quinone and quinoline series were subsequently subjected to more intensive *in vitro* studies. Four compounds of the series — para-xyloquinone, parathymoquinone, 2-methyl-1,4-naphthoquinone (menadione), and 8-hydroxyquinoline, possess outstanding antifungal qualities. The concentration of 2-amino-1, 4-naphthoquinonimine HCl was 77 times greater than that of the average substances now in therapeutic usage. Fungicidal activities were determined with the agents dissolved in 95 percent alcohol as solvent. K. A. Oster and M. J. Golden, *J. Am. Pharm. Assoc. 37*, 429-34 (1948).

DDT Coating

DDT coating on the surface of particles of a carrier is produced by fusing an intimate mixture of DDT and the base materials or by mixing a solution of DDT and the base materials and evaporating the solvent. E. H. Siegler, U. S. Patent No. 2,444,752.

Germicide Synergist

Dioctyl sodium sulfosuccinate, known commercially as "Aerosol OT," enhances the germicidal activity of various germicides in the presence of a castor-oil soap, with *B. typhosus* as the test organism. Sulfonated castor oil interferes somewhat with this effect. Increase in germicidal activity is illustrated by the following results:

Germicide	Control No "Aerosol OT"	With 0.1% "Aerosol OT"
Phenol, 1%	1.0	1.6
Cresol, 1%	1.3	2.2
para-Chloro-meta-xylenol, 2% .	1.4	2.5
Butyl phenol, 2% ..	1.2	2.3
Benzyl cresol	1.9	3.5
Cresantol-15, 3% ..	1.8	4.0

The germicides were dispersed in a 20 per cent solution of a neutral castor-oil soap. The increase in germicidal power noted appears to be stable. G. V. James, *J. Soc. Chem. Ind. 67*, 336 (1948).

Particle Size

The particle size and shape of insecticidal suspensions was studied in relation to their contact toxicity, using DDT against *Tribolium castaneum*. Long needles of 400 mu were most toxic, with 120-mu needles next, plate aggregates of 240 x 140 mu next, 40-mu needles, 60 x 15 mu plates, and colloidal DDT least toxic. Retention tests show that the differences in toxicity are largely correlated with retention of greater amounts of DDT. Possibly the longer needles are more readily retained by irregularities on the cuticle of the insect. A. H. McIntosh, *Ann. Applied Biol. 34*, 586-610.

Analysis of Pyrethrum

The accuracy of the Seil and Wilcoxon-Holaday methods has been studied systematically, using pure chrysanthemum acids for this purpose. It is shown that the Seil method gives very low results for pyrethrin I and slightly high results for pyrethrin II. These inaccuracies are largely independent of the presence of mineral acid and are due rather to a temperature effect. A modified Seil method which avoids steam distillation and presence of mineral acid, gives accurate figures for total pyrethrins, compared with the Wilcoxon-Holaday method. The latter method is shown to give accurate results for pyrethrin I if followed closely, but to give slightly low results for pyrethrin II, owing to incomplete separation of the chrysanthemum acid. A small modification avoids this error. W. Mitchell, F. H. Tresadern, and S. A. Wood, *Analyst 73*, 484-94 (1948).

Determination of BHC

Of the four known isomers of benzene hexachloride, only the gamma-isomer is reduced at the mercury electrode, so that it can be determined by polarographic methods. Absolute alcohol is preferred in making the solutions. G. B. Ingram and H. K. Southern, *Nature* 161, 437-8 (1948).

Chlordane Detection

Chlordane, under the influence of heat, pyridine, and alcoholic alkali, reacts with ethylene glycol monoethyl ether to give an intense red color that distinguishes it from other common ingredients of insecticide oil sprays, and is a quantitative indication of the amount present. J. S. Ard, *Anal. Chem.* 20, 858-9 (1948).

This is well illustrated by the numerous requests, today, to the state entomologist asking for directions on how to use DDT to kill flies in the kitchen.

The small seed and fertilizer retailers have numerous pamphlets on how to combat garden and agricultural pests and what products to use on these individual pests. Yet the consumer, faced with a household problem, has no such information available and selects a "cure all" to meet his problem, expecting miraculous results because of a high DDT content. Buyers are constantly writing to the manufacturers asking for literature on how to use their products, and there is no such literature to send them.

Today, there are six general types of insecticides, contact sprays, residual sprays, low and high pressure aerosols, powders and fumigants. Each of these classes is still making the mistake of claiming "that their product will kill everything from Amazing Grace to Floating Opportunity," and has tried to get its business at the expense of other forms of household insecticides. The market for insecticides is huge and needs only to be developed. Manufacturers of agricultural insecticides learned this lesson years ago. Their directions are clear and specific, and when related insects are not controlled, references are made to other products that will do the job.

The manufacturers of insecticides have not recognized the opportunities, nor have they developed them. They should stop trying to sell the corner drug store and concentrate on educating the public as to the actual use of insecticides. It is time to sell a quality product, to specify exactly what it will do, and to say so on the label. There is an excellent future for insecticides, if the manufacturer will only recognize it, modernize his product and method of merchandizing.

A. C. MILLER, Gulf Oil and Research Co., Pittsburgh, Pa., as chairman of the Insecticide Scientific Committee, reported on the progress of the 1948 projects.

Studies are being continued on the moth protective test technique and a revision of the proposed Commercial Standard TS-4262 is now under way by NAIDM, ASTM and AATCC. Copies of this revision will be available in three months. The projects on insecticide resistant flies, second cooperative aerosol test, fly rearing and Peet-Grady method, and minimum residual toxicant level for Peet-Grady AA rating are also undergoing further investigation.

Dr. Miller reported good results with Dr. Hazard's roach residual test method and recommended that studies be continued on this method; he also reported that Dr. Hazard's development of a suitable test method for roach powders had been terminated to permit work on other assignments.

Regarding the investigation of the test tablets for quaternaries, the committee reported favorable results with the tablets, indicating as disadvantages the deterioration of the tablets with time, and the necessity of using separate tablets for different quaternaries. The active ingredients of the tablets are not disclosed by the company manufacturing them.

IN a paper titled "Physiological Action of Some Quaternary Compounds," Dr. Herman A. Shelanski, Industrial Toxicology Laboratories, Philadelphia, described the tests made on laboratory animals in determining the acute and chronic oral toxicity of several quaternary compounds and reported on the skin patch tests on human subjects to determine the effect of the quaternaries on the skin. Results of the tests with these particular compounds ("Onyx BTC," "Onyxide," "Isothan Q-15" and "Tetrosan") indicated that they were toxic in high concentrations, but relatively nontoxic when dilute; intermittent use was not harmful; and they were strong primary skin irritants, but could be used internally in very low concentrations.

DR. P. G. Bartlett, West Disinfecting Co., Long Island City, N. Y. presented the paper "Applications of Quaternaries in the Laundry Field." He pointed out that although quaternaries are sometimes used in the direct replacement of sanitary products, in the laundry field they are used in addition to the sanitary products. While disinfectants commonly used on fabrics have no residual effect to prevent re-contamination, a quaternary provides this effect and prevents bacterial growth during use. Obviously, this property is especially desirable in laundering hospital linen, doctors', dentists', and nurses' uniforms, diapers, men's socks, etc. Furthermore, fabrics treated with a quaternary solution are less odorous, and there is no mildew formation of the dampened fabric.

Quaternaries form an emulsion with cleaning agents and provide the same residual effects as when used in the laundry. Two ounces of quaternary may be added on a 100 percent basis to treat 100 lbs; it should be added in solution form just before the final rinse, so that it will not be washed off in subsequent operations. For this reason, the time element in adding the quaternary is extremely important. Still in the process of investigation are other quaternary applications as in a sanitizing wash for fresh vegetables prior to freezing or shipping, or for inclusion in dry ice. Its actual use in these fields, however, is dependent on further toxicity studies.

JOHN D. Conner, N.A.I.D.M. General Counsel, reported on the status of the Federal Trade Commission Trade Practice Rules as related to wax products. A draft based on the recommendations made at the Sept. 9th meeting of industrial representatives and the Federal Trade commission has been completed, and will be submitted to the Commissioners for their approval. Another industrial conference will then be called, and on the basis of that meeting, the final set of rules will be drawn.

Points which will undoubtedly be discussed at this coming meeting will include: the scope of the rules, ie., whether they will apply to non-wax products, which are sold for the same purpose as waxes; setting up a specification on the minimum wax content

of emulsions with the word wax in their name; definitions of terms such as "slip retardents," and "water resistant." After the establishment of the rules, the various manufacturers and associations will be asked to subscribe to them.

MEANS of combatting the airborne infectious diseases have undergone considerable investigation, as pointed out by Dr. E. G. Klarmann, Lehn & Fink Inc., Bloomfield, N. J., in his paper "The Expanding Rationale of Chemical Disinfectants." Control studies from the standpoint of the treatment of air have included disinfectant sprays and vapors, aerosols, and germicidal ultraviolet radiation.

Data regarding the expulsion of organism in sneezing and talking, and survival of bacteria in the air and after settling was given by Dr. Klarmann in the course of his presentation. The studies were conducted in hospitals and barracks, where the bacterial content of air, bed clothes, wearing apparel and floor dust was analyzed under various conditions before and after treatment with the control methods being investigated.

Organisms, as spread by air currents stirring up secondary reservoirs, by sweeping and dusting, present quite a problem in spreading infectious diseases. The use of germicidal vapors and ultraviolet radiation is no longer considered adequate to sterilize the air. The limiting factors of disinfectants in anti-bacterial performance are to be recognized, however their application to surfaces is a logical procedure due to the eventual sedimentation of the air particles.

Dr. Klarmann's paper will be printed in its entirety in an early issue of this magazine.

THAT waxed surfaces have a tendency to soil more rapidly when the film is tacky, is well recognized by the industry; as a result, the measure of tackiness, which involves the determination of force necessary to separate surfaces, might appear to be a logical means to measure the soiling resistance of waxes. A more simple method of evaluating this property, however, involves the direct measurement of soil retention of the waxes by a new instrument described by Daniel Schoenholz, Foster D. Snell, Inc., New York, in his presentation of the paper "A Machine for Evaluation of Dirt Retention by Floor Wax."

The apparatus was described in detail and displayed at the meeting. Dirt retention is determined by measuring the light reflectance of the soiled surface by a reflectometer. The procedure for preparing samples and conducting the test was detailed, as were the experimental results on various coatings including individual and commercial waxes, shellac type resins, and wax emulsions.

A control test run on linoleum itself resulted in a rather high soil retention figure, which indicates that factors other than tackiness, as surface porosity and hardness, contribute to the magnitude of this property. Duplicate tests showed good reproducibility and agreed with general field experiences. Waxes to which a shellac had been added showed a reduced soil retention as compared with the same waxes minus the resin. Similarly, a distinct difference in soil retention of emulsions produced with high and low titer soaps was noted, the low titer oleate soap showing a marked increase in soil retention over the high titer soap. Data of a quantitative nature makes the apparatus especially useful as a tool for comparison and research.

CLARENCE L. Weirich, C. B. Dolge Co., Westport, Conn., was the moderator for the symposium on "Waxes—Present Anti-Slip Problems." Mr. Weirich explained that the anti-slip properties of wax, as evaluated by a number of instruments, depend on two properties of slip; the static coefficient of friction and the kinetic coefficient of friction. The second mentioned property is the basis of the Bureau of Standards instrument developed by Percy Sigler, United States Bureau of Standards.

R. G. MacAllister, Liberty

NAIDM BANQUET

Mutual Insurance Co., New York, was called on to enlarge further on anti-slip problems. He stated that a wax with a coefficient of friction greater than .25, as measured by the instruments used in his laboratory, could be considered as non-slip or safe; a wax with a coefficient of less than .20 could not be considered as non-slippery, and is therefore unsafe. The coefficient determinations, as evaluated by different operators using the same machine, are reproducible with ±10 percent error. Mr. MacAllister contended that a wax with the desirable slip coefficient, ie., one whose coefficient is greater than .25 and with an appearance satisfactory to the consumer, with respect to gloss, etc, is not available at this time.

The instrument by which the anti-slip tests were made consisted of a ten pound weight sliding on a polished maple shoe. A scale measures the tangent of the angle formed as the shoe slips on the various waxed surfaces. Data thus acquired are averaged statistically to determine the coefficient of friction. In the course of the tests, it was found that the application of several thin layers of wax to a surface results in a higher coefficient, or a less slippery surface, than when one thick layer of wax is applied.

According to Dr. Sigler, who used the Bureau of Standards machine, a "safe" wax is one with a coefficient of friction greater than .50. This value was determined by tests on cleaned asphalt tile with two layers of wax, polished between each application. The tests were made the morning following the wax application and the data of about 800 tests averaged to arrive at the .50 coefficient. Dr. Sigler further asserted that water emulsion waxes are available which give the desired coefficient.

Dr. Michael Sveda, E. I. du Pont de Nemours & Co., Wilmington, explained the mathematical relation of the factors involved in calculating skid resistances by the Bureau of Standards machine, and the magnitude of error of the coefficient to be expected when a predetermined error is made in any of the factors involved. The basic equation used in the determination is a follows: u=WH over DP where u is the coefficient of friction, W is the weight of the pendulum, H is the difference in height of the pendulum, D is the length of the heel scuff on the floor, and P is the spring pressure. It was shown mathematically that a positive error in either W or H gives the same percent error in the final reading. The same positive error made in each of the factors involved, cancels out, and results in no error in the coefficient; however, a positive error made in W and H, and the same negative error made in D and P results in a considerable magnification of the error in the coefficient reading.

Dr. Sveda suggested that the springs of the pendulum be case hardenened and tempered so that there would not be the variation between the true and apparent values; ie., that all springs should be calibrated and corrected to have the same true value.

Lt. Col. C. A. Shaunesy, Dept. of the Army, N.Y.Q.M. Purchasing Office, spoke on "The Quartermaster Industrial Mobilization Program," in which he expressed a prime interest in the production capacity of end items and in surveying the facilities for this production. The Army Research and Development staff is trying to develop a 90 percent DDT water dispersible powder and is continuing research on rodenticides.

NAIDM Meeting Sidelights

Ed Camson of Orbis Products passed out cigars recently. The fifth addition to the Camson tribe, says Ed,—a very lovely young lady, making the score now four girls and one boy.

* * *

Look for a broadening of the activities of NAIDM over the next year or two, particularly in the direction of floor waxes and other floor products, detergents, soaps, cleaning agents and especially dishwashing and sanitizing materials. Noting Prez. Baird, V. P. Oppenheimer, and Secy. Hamilton with their heads together conferring with Jack Varey and Mel Fuld, we hunched that this was the reason.

* * *

Reports have it that the well-known Chemists' Club gin rummy champ, one William Weed of Niagara Alkali, did real well in his gin foravs at the NAIDM meeting as usual. He admits to having run into only one tough customer, Hurley Feltman from Huntington Laboratories, away out in Indiana.

* * *

Dick Yates of Hercules Powder was elected to the NAIDM Board of Governors "en absentia," he having been attending a cotton insecticide meeting way down South in Dixie along with P. Mayfield of the same company. He serves for three years along with J. L. Brenn of Huntington Labs, a former prez, and Carter Parkinson of McCormick & Co. Howard Williams of J. R. Watkins Co. succeeds himself as a Governor for the next two years.

* * *

The new aerosol deodorants were much in evidence at the meeting, Kilgore Chemicals, Inc., Washington, Bridgeport Brass of Bridgeport, and Rex Research of Toledo being three proud sponsors. Also appeared a visitor from France with a new aerosol deodorant, Paul De Rosiere with "Microgerm," the new bactericide originally discovered by Timor of Paris.

* * *

The scientists at the NAIDM banquet were not at all backward in nabbing ring-side seats for the floor show, we noted with interest. Drs. Doner, Weed, Woodbury, White, Sr., Hedenburg, and Messrs. non-scientist and strong men, R. Sweeney of Sedalia, Mo., M. Flanagan of Chicago, and C. Dolge of Westport, Conn.,—were all right up on the firing line.

* * *

Henry Nelson, associated with Chemical Supply Co., Cleveland, for the past thirty years and for the past twenty president of the firm, startled the NAIDM membership with an announcement that he and the Ellis family, owners of the company, had sold out as of Dec. 1. More details later says Henry. He plans to go to California for a few months and then revisit his native Holland next summer. His address is now 65 East 197 St., Euclid, Ohio, until about Feb. 1.

* * *

How and where to sell more household insecticides,—a forum in which F. Thompson and J. Powell collaborated,—brought out some hot arguments of the aerosol versus oil-type spray. When the going got really rugged and strong words entered the fray, V.P.-L. Oppenheimer, from the floor, and V.P.-C. Wierich, presiding, intervened and shut off the argument.

* * *

Gifford Joins Mathieson

Henry Gifford, formerly on the sales staff of Allied Chemical and Dye Corp., New York, has joined the heavy chemical sales division of Mathieson Chemical Corp., New York, with headquarters in Chattanooga. He will cover Tennessee and surrounding states. Mr. Gifford received his B.S. degree from Clemson A. & M. College in 1935.

Chemists' Club Is 50

The fiftieth anniversay celebration of the founding of the Chemists' Club of New York was held at the club Dec. 9. The celebration was in the form of a dinner.

TRADE NEWS

John Powell Sells His Interest in John Powell & Co.

John Powell receiving plane ticket for a round-the-world trip given to him by his associates and being presented here by Dr. Alfred Weed who with H. Alvin Smith and William J. Pollert, has assumed control of the company.

JOHN Powell, president of John Powell & Co., New York, associated with the firm since its founding in 1923, resigned as of Jan. 1 and announced the sale of his interest to his associates, William J. Pollert, H. Alvin Smith, and Dr. Alfred Weed who have assumed full control of the company. Mr. Powell was associated with the insecticide and botanical drug industries for over thirty years, being formerly connected with J. L. Hopkins & Co. and Arthur Stallman Co.

At a testimonial farewell dinner tendered to Mr. Powell at the Hotel Vanderbilt, New York, by the company, and attended by 200 friends and associates, he was presented with a Pan American World Airways trip around the world and a scroll signed by all those present. Mr. Powell announced that he planned to enter the publishing business with a new monthly magazine, "Modern Sanitation," designed to cover the sanitation interests and problems of the industrial and institutional fields, and with offices at 855 Avenue of the Americas, New York.

H. Alvin Smith, executive vice-president of John Powell & Co., in tracing the history of the company, pointed out that Dr. Weed and Mr. Pollert had been associated with the management each for twenty years, and that there would be no change in policies or in the organization. Mr. Powell announced that he had resigned as treasurer of the National Association of Insecticide & Disinfectant Manufacturers, a position which he had held for the past eighteen years.

PCO Meetings

The 1949 convention of the National Pest Control Association will be held at the Biltmore Hotel, Los Angeles, Oct. 17-19, the organization announced recently. Other annual meeting places and dates include the Netherland Plaza Hotel, Cincinnati, Oct. 23-25, 1950 and the Hotel Statler, Boston, Oct. 29-31, 1951. The 1952 convention will be held in Texas with the city to be named at a later date.

West Disinfecting in Texas

West Disinfecting Co., Long Island City, N. Y., is constructing a new warehouse office building at 5416 Maple Ave. and Denton Road cutoff, Dallas, Tex. The new building, which will house the southwestern district headquarters of the firm, will provide 1,500 square feet of floor space. Offices will be air-conditioned, acoustically treated and have flouresecent lighting. The warehouse will have a truck-high floor. D. C. Cox is branch manager for the area, which includes the states of Texas, Louisiana, Arkansas, Oklahoma, and New Mexico. A staff of 37 salesmen and 70 other employees is maintained at the branch.

Forms Holly Chem. Co.

Morris K. Perinchief, formerly sales manager of Scientific Soil Products, Inc., New York, recently announced the formation of his own firm; Holly Chemical Co., Mount Holly, N. J. The new firm will manufacture insecticidal sprays and dusts and industrial chemicals. Earlier Mr. Perinchief had been a salesman for Pennsylvania Salt Manufacturing Co., Philadelphia, and at one time was sales manager for Virginia Smelting Co., West Norfolk, Va, The new firm's offices are at 315 Broad St., Mt. Holly.

Acquires Crown Division

Sale of the inventory and assets of Sanitary Products and Paper Company of Brooklyn, a division of Crown Zellerbach Corp., to Eastern Sanitary Products and Paper Corp., was announced recently by R. C. Fisher, branch manager of Sanitary Products & Paper Co. A. L. Scharf, president of Eastern Sanitary Products and Paper Corp., for the past 19 years has been general manager of Sanitary Products and Paper Co., operating in five cities in the states of New York and Pennsylvania. Eastern Sanitary Products and Paper Corp. will continue to carry its predecessor's line.

NSSA Eastern Group Meets in New York

WHILE sales and sales training were among the more important topics of discussion at the third eastern regional meeting of the National Sanitary Supply Association, held at the Park Central Hotel, New York, Dec. 9-10, considerable interest was shown in the forum on "Floor Maintenance and the Proper Use of Sanitary Chemicals". Approximately 200 were registered for the meeting.

Jack Gantz of Empire Brush Works, Inc., Port Chester, eastern regional vice-president of the National Sanitary Supply Association, was general chairman and opened the meeting with an address of welcome. He introduced Lee Fried of Enterprise Paper Corp., New York, who was program chairman, assisted by Jack Kahn of Windsor Wax Co., Hoboken, N. J. Mr. Fried introduced the officers and directors of NSSA present and then presented the first speaker, F. K. Doscher, vice-president in charge of sales of Lily Tulip Cup Corp., who discussed the need for improving sales methods and selling organizations to meet the new competitive conditions of selling.

A question and answer type panel discussion on floor maintenance was the next feature of the program. Composing the panel were Jack Kahn of Windsor Wax Co., Hoboken, N. J.; C. F. Bingham of Chemical Manufacturing & Distributing Co., Easton, Pa.; Glen E. Doerr, Floor Division of Federal Varnish Co., Chicago; Jack Varley of James Varley & Sons, St. Louis. The use of glycol type air disinfectants was discussed at some length by Mr. Varley, who pointed out that these air sanitizers will open up an entirely new field for firms in the disinfectant business. Methods of applying glycol vapors were also covered.

On floor maintenance, questions relating to care of asphalt tile flooring were covered. Cleaning other types of floors and special problems relating to floor maintenance were also touched upon in the discussion.

A cocktail party, by courtesy of the group's manufacturing members, and dinner concluded the day's activities.

The second day of the meeting opened with a talk on "Sanitizing with Quaternary Ammonium Compounds" by Dr. R. C. Sherwood of Winthrop-Stearns, Inc., New York. He explained the various types of disinfectants, sketching in some of the chemical make-up of the quaternaries. Also mentioned were the phenol disinfectants and the phenol coefficient test. A number of applications for use of quaternaries in various sanitizing and cleaning operations were covered.

The final feature of the discussion session was a talk on sales and sales training by Morris I. Pickus of Personnel Institute, Inc. The meeting concluded with a group luncheon that was addressed by Al Schacht, baseball humorist, and Leo Kelly, executive vice-president of the National Sanitary Supply Association. Mr. Kelly discussed the efforts of his group in dissuading the American Hotel Association from going ahead with its plan to test waxes at the manufacturers' expense. Mr. Kelly also announced that the board of the NSSA at the recent New Orleans regional meeting had voted to have made and distributed a series of moving pictures on proper cleaning methods and related subjects.

Acquire Capital Supply Co.

Acquisition of Capital City Supply Co., Bethesda, Md., by Harry M. Shooman and Harry L. Isikoff was announced recently. The firm will act as exclusive distributor in the Greater Metropolitan area of Washington, D. C., including Alexandria and Arlington, Va. and Montgomery and Prince George Counties in Maryland for Gold Seal "Glass Wax." Mr. Shooman, who was in service during the recent war period, has been connected with the government as an attorney for the past 17 years. His partner, Harry L. Isikoff, also an attorney, was formerly with United Nations Relief and Rehabilitation Administration. A warehouse that provides 3,000 square feet of floor space and a separate office building are maintained by the firm at River Road on the Baltimore & Ohio R. R. tracks at Bethesda.

N.Y. NSSA Banquet

Article on N.A.I.D.M.

The work of the National Association of Insecticide and Disinfectant Manufacturers in relation to the industries it represents, the public and government is discussed in an article in the November, 1948 issue of *Scientific Monthly*. The title of the article, by W. A. Simanton of Agricultural Chemical Co., Phoenix, is "Science on the March—the Science of Sanitation." The work of the N.A.I.D.M. in "establishing ethical business relations and promoting a spirit of cooperation," as well as in setting up technical standards and providing fellowships for the study of various materials is covered in the article. Legislative efforts of the Association and its cooperative scientific and technical work with various government agencies are described. The N.A.I.D.M. has 269 members, as against 15 firms who belonged to the association in its first year, 1915.

Parker Merck Sales Head

Dr. Frank M. Parker was recently appointed manager of the

DR. FRANK M. PARKER

general sales department of Merck & Co., Rahway, N. J., to succeed Dr. J. L. K. Snyder, who was earlier named vice-president of domestic sales. Dr. Parker has been with the company since 1933 and holds degrees from the universities of Dubuque and Chicago.

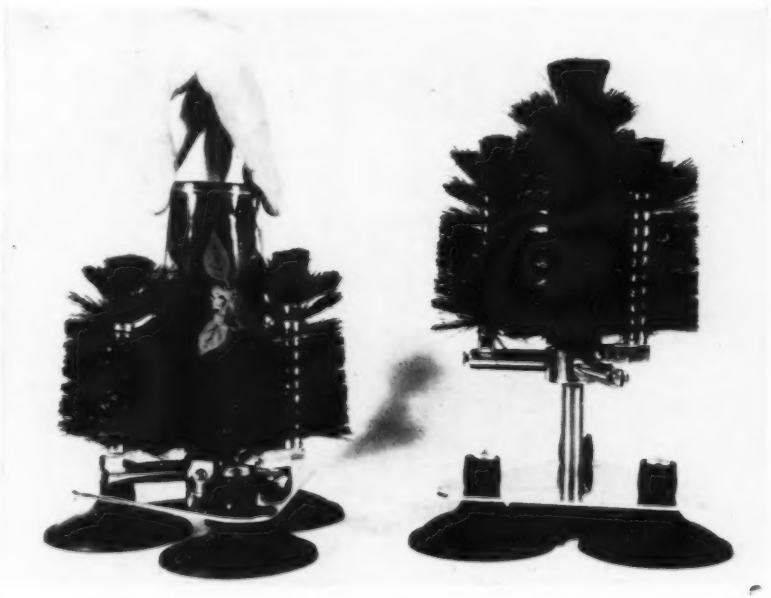
New Bobrick Dispenser

A new liquid soap dispenser that features a completely demountable and replaceable mechanism was announced recently by Bobrick Manufacturing Corp., Los Angeles. Once the dispenser is fastened to the wall it need never be removed because of the accessibility of the dispensing mechanism for removal or replacement. The soap container itself is made of "Lustrex," a shatterproof, translucent material through which the level of the soap may be seen. The hood, of unusual design, and the working parts of the mechanism are made of stainless steel. Other features include a concealed wall fastening device designed to protect the device from theft and the cap, which can only be opened with a special key. Equipped with "WallPlad," an exclusive feature, the new "Bobrick 24" dispenser may be attached to marble, tile, steel, concrete or any other hard wall surface without screws. It may also be attached to the wall by conventional methods.

The new unit is equipped with the "HydroFlex" mechanism, upon which Bobrick has patents pending. The mechanism has no packings or washers. (See picture page 45.)

New Rotary Glass Washer

A new adjustable rotary glass washer was announced recently by R. W. Orr Mfg. Co., Union, O. The new washer, which stands on three large rubber suction cup feet features three brushes that come in contact with the outside of the glass. Another large brush is situated in the center device and washes out the interior of the glass. As pressure is applied on the glass it rotates the four brushes. A center spring forces brushes back to original position when pressure on glass is removed. Brushes turn in reverse as they return to normal position. The washer is recommended for bars, restaurants and hotels. It is made of stainless steel and nickeled brass parts.



Errata

In our November issue in a story dealing with the new wax-like cleaner for glass, metal, etc., made by Bon Ami Co., New York, we inadvertently transposed two of the letters in the name of the product, which is "Glass Gloss." For any embarassment we may have caused the concern we are extremely sorry.

On page 65 of our November issue we stated erroneously that Paradize Products Corp. is located in Fultonville, N. J. It should have read Fairview, N. J.

Another mistake crept into the article "Floor Sealers and Hardeners" in the October issue. On page 131, in the center column, the first sentence in the fifth paragraph should read "This yields 85 gallons of sealer with a non-volatile content of 35 percent," not 85 percent as appeared in the article.

New Powder Dispenser

A new, all steel, chrome-plated powdered soap dispenser was announced recently by General Manufacturing & Engineering Co., Chicago. A feature of the new dispenser is that the glass bowl is of the standard Mason jar quart or pint size. The dispenser locks to the wall and is equipped with a grate type agitator.

Dr. G. W. Barber Dies

Dr. George W. Barber, 58, entomologist and associate research specialist at the New Jersey Agricultural Experiment Station, Rutgers University, New Brunswick, N. J., died Dec. 6 of a heart attack while on his way home from the 35th annual meeting of the National Association of Insecticide & Disinfectant Manufacturers, held in New York Dec. 6 and 7. He had been associated with the Department of Agriculture in investigations of methods of exterminating the corn ear worm in sweet corn before joining the Rutgers faculty in 1946. Recently Dr. Barber had been concentrating his efforts on the study of DDT resistant houseflies, and had published a paper on the subject with two collaborators in the November, 1948, issue of *Soap & Sanitary Chemicals*.

Eugene H. Sameth Dies

Eugene H. Sameth, 50, of Sameth Exterminating Co., New York, died of a heart attack Nov. 26. Although he held no official position in the National Pest Control Association, he was an active member and worked closely with the organization. Mr. Sameth's brother Irving, who died suddenly a few years ago, was a past president of the N.P.C.A. In addition to his father, Nathan N. Sameth, founder of Sameth Extermanating Co., Mr. Sameth is survived by his wife, two daughters, and four sisters.

NPCA Honors Pomerantz

An inscribed wrist watch was presented to Charles Pomerantz, Bell Exterminating Co., New York, for his work in the discovery of Rickettsialpox, at a recent meeting of the National Pest Control Association, Brooklyn. The presentation was made by George L. Hockenyos, Sentinel Insect Control Laboratories, Springfield, Ill., a past president of the Association.

Meyer Retires from Fumex

Herbert Meyer recently announced dissolution of the partnership of Fumex Sanitation Co., Jamaica, N. Y., with which he has been associated since 1934 and has retired. Chester Schwimmer, the remaining partner, will continue to operate the business. Mr. Meyer was active in the National Pest Control Association, having served on various important committees, as a director and regional vice-president.

Penn Salt Names Ewell

Herbert M. Ewell was recently appointed trade supervisor of the B-K division of Pennsylvania Salt Manufacturing Co., Philadelphia. He will make his headquarters in Arlington, Mass.

U.S.D.A. Chlordane Data

The U. S. Department of Agriculture, Washington 25, D. C., recently issued a bulletin, 2482-48, which discusses chlordane for Japanese beetle grub control. Copies are available by writing the Department's Press Service.

Below: Two views of the group attending the first regional conference of the southwestern section of the National Sanitary Supply Association aboard the yacht, "Good Neighbor" for a two hour cruise on the Mississippi.

Above: Dr. Elvin H. Killheffer of E. I. du Pont de Nemours & Co., Wilmington, who was elected last month as president of the Synthetic Organic Chemical Manufacturers Association.

Insecticide Law Data

"Service and Regulatory Announcements, No. 167," containing interpretations of regulations for the enforcement of the Federal Insecticide, Fungicide and Rodenticide Act, currently is being distributed without charge by the Production and Marketing Administration, U. S. Department of Agriculture, Washington 25, D. C.

Winter Joins Powell

Charles R. Winter, formerly of United States Rubber Co., New York, recently joined John Powell & Co., New York. He has been appointed regional sales manager for the North Central states and will make his headquarters in Chicago.

Fitch Dustdown Expands

Fitch Dustdown Co., Baltimore, has added new products, including insecticides and sprays, to their line of janitor supplies. T. Meredith Bonner, Jr., secretary, has announced. The company recently acquired an additional 10,500 square feet of floor space by purchase of the building adjoining their quarters at 801 S. Howard St., he stated.

New Continental V. P.

J. E. Niederhauser, formerly manager of industrial relations for Continental Can Co., New York, was recently advanced to the newly created post of vice-president in charge of industrial relations.

Genetron Compatibility

With the announcement last month by General Chemical Division of Allied Chemical & Dye Corp., New York, of the availability of "Genetron" as a dispersant in low pressure aerosols, its suitability for use with piperonyl butoxide and pyrethrins in insecticides was announced recently in a bulletin of the insecticide division of U. S. Industrial Chemicals, Inc., New York. The compatibility and solubility of the two U.S.I. toxicants and the lack of any formulation difficulties in connection with the use of the new dispersant were reported by the bulletin. At the same time, concentrations of piperonyl butoxide and pyrethrins will continue to be as insecticidally effective as in present mixtures.

New Amer. Soap Dispenser

A new, heavy glass, wall type, quart size liquid soap dispenser was developed recently by American Dispenser Co., New York. The glass dispenser, roughly in the shape of a triangle, is attached with the broad side flush against the wall. It is fastened in position by two stainless steel bands near the top and bottom. The

dispenser is seven inches high and four inches wide. The distance from the wall to the spout is three and one-half inches. The new unit is filled from the top through a large opening. Other features include brass valve, stainless steel spring, "Neoprene" washer, all rust proof parts and heavy corrugated glass globe.

Berentsen, MM&R, Dies

Thomas B. Berentsen, 38, director of purchases for Magnus, Mabee & Reynard, Inc., New York, died suddenly of a heart attack, Nov. 20, while hunting at Lake Mahopac, N. Y. He had been with MM&R for the past three years, having joined the firm upon completion of service with the U. S. Navy in the Pacific.

Effects of the Knipling Report

ISCO Appoints Hiller

Paul W. Hiller, a special representative of the company, was re-

PAUL W. HILLER

cently appointed manager of the newly-formed products development department of Innis, Speiden & Co., New York. He has been associated with the chemical industry for the past 31 years and has been with Innis, Speiden since 1919. The new products development department will coordinate work in the company's three fields: chemicals, gums and waxes. The work, previously carried on in each department, will emphasize development of new products and processes.

Army Calls Hubman V.P.

Colonel E. L. Nelson, vice-president of Hubman Supply Co., Columbus, was recently granted a leave of absence to re-enter military service. In Colonel Nelson's absence, W. C. Hubman, president of the firm will assume his major duties. After five years of service during World War II, Colonel Nelson was released from active duty Dec. 26, 1945. He has been ordered to extended active duty in the Far East Command and reported for duty on Jan. 1, 1949. A former salesman for the company, Colonel Nelson was elected vice-president on July 1, 1946. More recently he was in charge of the sales and purchasing departments.

Clarence G. Cochocki, formerly a research engineer for Battelle Memorial Institute, has been appointed chemical director of Hubman Supply Co. He is a graduate of the University of Wisconsin and is a registered licensed engineer in the states of Ohio and New York. Before joining Battelle, he was with National Aniline Division of Allied Chemical and Dye Corp., New York. In his new post Mr. Cohocki is directing chemical research, quality control and plant production, and is acting as technical consultant for industrial cleaning operations in manufacturing plants.

Dealers Meet At Rutgers

Insecticide and fungicide dealers in New Jersey held their annual meeting with members of the Agricultural Experiment Station and Extension Service staffs at Rutgers University, recently. During the meeting, Lea S. Hitchner, executive secretary of the American Insecticide and Fungicide Association, New York, described the general outlook for supplies of insect poisons and plant disease remedies in 1949. A representative of the U. S. Department of Agriculture at Washington reported on work currently being done with new insecticides.

B. T. Bush To Europe

Burton T. Bush, president of Bush Aromatics Inc., New York perfuming materials importers and manufacturers sailed for Europe on the *Queen Elizabeth* December 23rd. Mr. Bush expects to spend three or four weeks in southern France checking on the essential oil and aromatic chemical supply picture for 1949.

SAACI Nominaters' Slate

The nominating committee of the Salesmen's Association of the

ALFRED T. LOEFFLER

American Chemical Industry recently announced the following list of candidates for 1949: President, Alfred T. Loeffler, Monsanto Chemical Co.; vice-president, Charles V. Douglas, Heyden Chemical Corp.; treasurer, Paul W. Hiller, Innis, Speiden & Co.; secretary, Edward A. Bush, Bush Aromatics, Inc.; and these directors, 1949-1951, Robert J. Milano, Millmaster Chemical Co.; 1949-1951, George W. Poland, Jr., Stauffer Chemical Co., and 1949-1950, William J. Weed, Niagara Alkali Co., all of New York.

Brooklyne Opens in N. Y.

Brooklyne Chemical Works, Inc., Baltimore, recently announced the opening of a sales office at 37 Wall St., New York 5.

The trio at right against the familiar background of that well known New Jersey seaside resort is composed of Arch Payne, sales manager; Joe Fein, treasurer and purchasing head, and Fred Kromholz, eastern representative, all of Florsynth Laboratories, Inc., New York. The occasion? A recent convention, of course.